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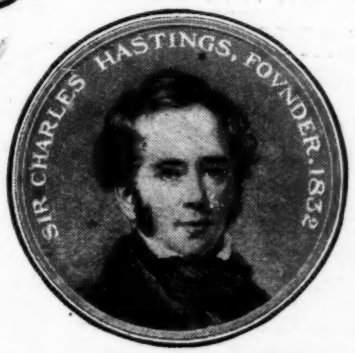

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DELIVERED BEFORE
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BY

H. H. DALE, M.D., F.R.C.P., F.R.S.,
HEAD OF THE DEPARTMENT OF BIOCHEMISTRY AND PHARMACOLOGY UNDER THE MEDICAL RESEARCH COUNCIL.

LECTURE I.

IT is fitting that the Oliver-Sharpey Lectures should deal with the application to medical problems of some physiological development of current interest. Among fresh developments of recent years has been a rather remarkable awakening of interest in the function of the capillary blood vessels as an active factor in the circulation. But a few years ago discussion of a possible activity of the capillaries was almost limited to the question whether their primary function, of facilitating chemical interchange between the blood and the tissues, involved an active secretion, or could wholly be explained by the physical processes of filtration, osmosis, and diffusion. There were not wanting, indeed, records in detail of appearances seen under the microscope, which were difficult to interpret except by attributing to the capillary walls an independent power of contracting, relaxing, and maintaining a tonus. But the prevailing tendency was to find alternative explanations for these appearances, or, in so far as a contractile function of the capillaries was admitted as a possibility, to regard it as a remnant of an embryonic condition, which, if it persisted in the fully differentiated vascular system of the higher vertebrates, played no real part in the regulation of the blood stream.

As long ago as 1858 Lister,[1] in his classical work on inflammation, described appearances which, I think, we should to-day not hesitate to attribute to active changes in capillary tone; but tradition was strong enough to lead him to interpret them as secondary to changes of pressure, produced by changes in the tone of the arterioles. Stricker,[2] in 1865, was the first observer to claim that changes in the capillary lumen took place independently of the blood pressure, since he was able to see them in the nictitating membrane of the frog, even when excised from the body. The soundness of the observation was challenged by the authority of Cohnheim,[3] and a series of workers—Golubew,[4] Tarchanoff,[5] Severini[6]—who confirmed and extended Stricker's observation, were so far reluctant to attribute the narrowing of the capillary lumen to contraction of the wall in the ordinary sense, that they described it as due to the swelling of the nuclei of certain fusiform elements, which produced a partial or complete blockage.

In contrast to these, and in conformity with the most recent observations, was the description given by Rouget[7] of special flat contractile cells, applied to the outside of the capillary endothelium, and encircling the vessel by delicate protoplasmic processes. Roy and Graham Brown,[8] whose elaborate investigation was published in an early volume of the *Journal of Physiology* (1879), produced convincing evidence of the independent tone and contractility of the capillaries, but, apparently in ignorance of Rouget's work, were content to ascribe the function to the capillary wall as a whole. Rouget's work, indeed, was practically forgotten until Mayer,[9] nearly thirty years later, repeated and confirmed his observations, describing not only the special form of contractile cell seen on the true capillaries, but all intermediate forms between this and the true plain muscle fibres of the arterioles and venules respectively. Steinach and Kahn[10] then renewed observation of the living capillaries, and demonstrated contraction in response to stimulation, the contraction being in accord with the descriptions given by Rouget and by Mayer, in that the endothelial wall was seen to become folded and creased by an external constricting force. They added the important point that the capillaries, like the arterioles, have a motor nerve supply from the sympathetic system.

This body of direct evidence, produced up to the year 1903, seems to have had little effect on physiological teaching. Attention being naturally concentrated on the picture of the capillaries, as that part of the vascular system in which the blood performs its respiratory, nutritive, and cleansing functions, it was apparently assumed that their walls had become so differentiated to facilitate filtration, diffusion, and osmosis, as to have lost the primitive contractile function, so that their state of patency or collapse was held to be determined entirely by the pressure in the arteries or the veins. For the next fourteen years this conception was only disturbed by observations which did not seriously influence the general trend of opinion. The observations of Heubner[11] on the type of circulatory collapse, produced by certain metallic and bacterial poisons which injured the capillary wall, were apparently not regarded as having a bearing on normal conditions. Langley's[12] suggestion that the intense local ischaemia produced by adrenaline seemed to involve an active participation of the capillaries in the vasoconstriction, and[13] that this intrinsic capillary tone might be of importance under conditions of very low arterial pressure, seemed to lie rather aside from the main current of interest in the physiology of the circulation. From the point of view of the normal regulation of the blood flow, the rôle of the capillaries was regarded as one of passive obedience to external forces; and to emphasize the contrast between this view and that to which the work of recent years had led us I entitled these lectures "The activity of the capillary blood vessels."

A feeling of dissatisfaction with the accepted teaching seems to have been in the scientific atmosphere in the early years of the war; for about the year 1917 evidence pointing in another direction began to appear from at least four different and independent sources. Early in that year Cotton, Slade, and Lewis[14] published a very important communication on the reaction of the capillaries in the skin of man, as exhibited in the phenomena long known as "dermatographism"—the local vasomotor response following non-traumatic pressure. They showed that both the red and the white tache, representing reactions to different degrees of pressure, or different degrees of sensitiveness, and often appearing alongside one another in the same individual, must be attributed to intrinsic relaxation and contraction of the capillary walls, since they were produced, often with little or no impairment, in a limb with the circulation completely arrested by closure of the arteries. Only the diffuse flush, surrounding the tache, was obliterated by arterial obstruction, and, like the flush developing round a painful, punctiform stimulus, which it closely resembled, must be attributed to reflex relaxation of the arterioles. They found, further, that, in a limb in which the circulation had been brought to a standstill, a small injection of a dilute solution of adrenaline still produced an area of characteristic pallor. Mere constriction of arterioles or venules containing stationary blood could not thus empty the capillaries, so that Langley's suggestion that these also contracted actively in response to adrenaline was definitely established, and, by inference, the motor sympathetic innervation of their walls, described by Steinach and Kahn, was confirmed.

Later in the same year Ebbecke[15] published, in *Pflüger's Archiv*, a paper which, owing to conditions then existing, only later became available in other countries. It covered much of the same ground and led him to conclusions, concerning the local vasomotor reactions of the skin vessels, very similar to those of Cotton, Slade, and Lewis. He added the important point that a closely similar reaction of the capillaries, by dilatation, to stroking pressure, could be observed on the surface of viscera, such as the liver and the kidney. Both these sets of quite independent observers noticed that a pronounced local dilatation of capillaries, thus produced, might result in a local oedema, with formation of a raised wheal. This increase of permeability, accompanying full relaxation of the capillary wall, is, as we shall see, a point of very general importance. In his long and suggestive paper Ebbecke also reviewed a wide range of phenomena in which the varying tone of the capillaries might participate,

mentioning, in this connexion, the action of poisons like peptone and histamine, and some of the features of the anaphylactic reaction.

It was this last aspect of capillary function—the connexion of changes in capillary tone with the action of certain poisonous protein derivatives—which at this same period had forced itself on the notice of my co-workers and myself. But it will be convenient if I depart a little from strict chronology, to mention another group of investigations which was also, at this same time, proceeding independently—namely, the beautiful series of observations by Krogh, which, though by accident their publication began a little later, were already in active progress, and which, with the help of his fellow workers in Copenhagen, have continued to the present day. Fortunately Professor Krogh, by the recent publication of his Silliman lectures,[19] has made it unnecessary that I should give more than a general review of his work. We may note that he had been led to this question by yet another entirely different route, his original problem being that of the oxygen supply to the voluntary muscle fibre. He was impressed by the difficulty of accounting for the adjustment of the blood supply to the widely varying needs of the active and the resting muscle for oxygen, unless the capillary vessels were actively contractile, so that, with a large proportion closed and impervious to blood in the resting muscle, there would be a large reserve of potential channels, the opening of which would meet the need for a relatively enormous increase of blood in close relation to the muscle fibres, during and after contraction.

By an ingenious method of intravital injection with Indian ink Krogh was able to give a clear demonstration of this adjustment. He counted and measured the capillaries open to the blood flow in the resting and the working muscles of frogs and small mammals, and his figures show an impressive contrast. One actual count of the open capillaries in a guinea-pig's muscle at rest showed only 85 per square millimetre, while in the muscle at work no less than 2,500 were counted in the same area—a ratio of 1 to 30. Still more impressive was the disparity between the volumes of blood in the muscle capillaries under the two conditions, calculated from measurements of the sectional areas and lengths of the capillaries open to the circulation. The blood volume, given as a percentage of the muscle volume, varied from 0.02 per cent. in the resting muscle, to 5.5 per cent. in the active muscle, and 15 per cent. in the muscle with all the capillaries fully dilated. In other words, the volume held by the capillaries open for transmission of blood in a normal, resting muscle, may be as little as one 750th part of the total capacity of the whole capillary network in the muscle, if all were fully dilated. We may note the obvious inference. If we suppose that, under normal conditions of rest, the capillary vessels in the voluntary muscles hold at any moment no more than 1/750 of the blood in circulation, if all, for any reason, were simultaneously relaxed to the fullest extent they would accommodate the whole of the blood in the body.

Having become convinced of the importance of this variable intrinsic tone of the capillaries in regulating the flow of blood, Krogh and his fellow workers proceeded to investigate its finer mechanism, by physiological studies carried out under the microscope, with the aid of the facilities for illumination now available. They have confirmed, on all points, the description given by earlier workers, such as Steinach and Kahn, of the response of the capillaries to minutely localized stimuli by variations of their proper tonus. They have demonstrated the possibility of making an individual capillary relax by gentle local stimulation. They have confirmed, as also has Hooker[20] of Baltimore, the presence of a motor supply to the capillaries in the sympathetic nerves, and have added the highly significant observation that stimulation of true sensory nerve fibres, arising in the dorsal root ganglia, not only causes dilatation of arterioles, as Stricker[21] had first shown, and Bayliss[22] much more convincingly, but independent relaxation of the capillary walls as well. The dilator effect on capillaries of stimulating sensory roots was first described by Doi,[23] working in Starling's laboratory. Krogh and his colleagues have related this sensory supply to the spread of the capillary dilator reaction from a punctiform stimulus, which disappears when the nerves are degenerated. Krogh[19] suggests the existence of a peripheral nervous network, formed by anastomosis of these branches from sensory fibres. There are here many points of detail still needing elucidation.

Of at least equal interest is the fact that Vimtrup,[24] at Krogh's suggestion, has reinvestigated the minute histology of the capillary motor mechanism, and has fully confirmed and extended the descriptions of contractile cells given by Rouget and by Mayer. It seems no longer possible to question the presence of these flat, branching contractile cells, applied externally to the endothelial wall of the capillary, and girdling it with fine processes. Equally certain seems the continuity of this contractile coat of the capillaries with the plain muscle coats of arterioles, on the one hand, and venules on the other, all intermediate forms between the fully differentiated plain muscle fibre and the flat, branching Rouget cell being found at the transition in either direction. There are vessels, indeed, in the subpapillary plexuses of the skin, which from their size would be counted veins, but from their structure must rank as giant capillaries (Krogh[19]).

Such evidence is making it inevitable that we should abandon the conception of contractile function, active regulation of the blood flow, as ceasing abruptly where an arteriole opens into the capillary network. We cannot longer, I think, regard the capillaries as passive, membranous tubules, opening or collapsing merely in response to rise or fall of pressure, whether internal pressure of the blood, as has generally been assumed, or external pressure due to swelling or deturgescence of the surrounding tissues, as in the view put forward by Leonard Hill[25] in a highly suggestive lecture. I think we must accept it as established that the capillaries have their own contractile coat, continuous with the plain muscle coats of the arterioles and venules—more delicate and less fully differentiated than these, indeed, but similarly supplied with motor and inhibitor nerve fibres.

This contractility of the capillaries being accepted as proven, we have to inquire into its function and its significance for the control of the circulation. It can hardly be doubted that its normal function is a fine adjustment of the circulation, supplementing the relatively coarse adjustment effected by the varying tone of the arteries. We have seen that, under normal conditions, only a small proportion of the capillaries in any tissue must be regarded as simultaneously open for the transmission of blood; and we must suppose that, as the metabolic demand shifts from one cell or tissue unit to another, some capillary paths close down, while others open. The fact, demonstrated by Krogh, that the capillary tone is not only under nervous control, but finely responsive to chemical stimuli, obviously fits it for that purpose.

These results of direct observation of the individual capillaries correspond in a very striking manner with conclusions to which my fellow workers and I had found ourselves driven by evidence of a very different kind, and which, indeed, we had already put forward a few months before the publication of Krogh's investigations began. Dr. Laidlaw and I[26] had been interested and puzzled for some years by the action of the intensely active base histamine, which reproduced a type of action exhibited by a large group of poisonous protein derivatives—a complex of symptoms which, at the outset of our work, had recently come into renewed prominence in the guise of the so-called "anaphylactic shock." The occurrence of a kind of toxaemic collapse in a proportion of severely wounded soldiers[27] had given, in the early years of the war, a new keenness to our desire to clear up outstanding difficulties in the action of histamine, which was capable of producing a condition in many ways so similar.

The main difficulty was briefly this. It was a powerful and general stimulant of plain muscle, of that of the arteries, so far as direct evidence could show, as well as of other organs. When added to blood or a saline solution perfused through the vessels of any excised organ it produced, in accordance with expectation, a simple retardation of the flow and diminution of the organ volume, by increasing the arterial resistance. Yet, when injected in a small dose into the vein or artery of an anaesthetized animal of the same species, it caused a simple fall of arterial pressure, having all the features of a pure vaso-dilator effect—that is, an action due to diminution of the peripheral resistance to the circulation.

There have been several attempts, some of them quite recent, to explain this paradox by representing this depressor

action of histamine as due, not to vaso-dilatation, but to constriction at some point on the venous side of the circulation, retarding the return of blood to the left side of the heart. These various constrictor actions—on the hepatic veins (Mautner and Pick[28]), on the pulmonary arterioles (MacDowall[29]), and on the mesenteric venules (Inchley[30])—do doubtless occur. Indeed, their occurrence was explicitly recognized by Laidlaw and myself as playing a minor part in effects seen at different stages of the action of large, shock-producing doses of histamine. But we satisfied ourselves that they were not seriously concerned in the evanescent effects produced by small doses. These in every respect—in the increase of the heart's output, the accentuated volume-pulse in a limb, the bright red flush which can be seen by simple inspection of the exposed intestine—resembled those of substances causing arterial dilatation.

A somewhat complex investigation, in which I had the great advantage of co-operating with Professor A. N. Richards[31] of Philadelphia, drove us, in the face of the accepted physiological teaching, to the conclusion that this depressor action of histamine was due to a vaso-dilator action, not on arterioles, like the long familiar effect of nitrites and the more recently studied effect of acetyl-choline, but on the capillaries. The failure hitherto to demonstrate this action of histamine on the artificially perfused organ was attributable to the fact that, under the conditions of such an experiment, the capillaries had not retained any of their normal tone, so that further relaxation was impossible, and only the constrictor effect on arteries appeared. By finding the conditions necessary for the artificial maintenance of the capillary tone—namely, the presence in the perfusion fluid of red corpuscles, to maintain a free supply of oxygen to the tissues, and a small proportion of adrenaline—we were able, in the perfused organ, to demonstrate the vaso-dilator action of histamine as in the whole animal. The perfusion pressure fell, the volume of the organ increased, and the venous outflow was accelerated. Venous constriction would not produce such an effect, since it would impede the outflow and raise the perfusion pressure. Arterial dilatation might do so, but it could be shown that this did not occur; a preparation consisting only of the arteries, down to the finest branches which could be separated from the tissues, perfused under identical conditions responded to histamine with simple constriction, while nitrites and acetyl-choline caused prompt and wide relaxation.

There remained only, as the site of this demonstrated vaso-dilatation, the capillaries and possibly the microscopic arterioles immediately preceding them. Between these our methods could not distinguish; and, indeed, the evidence now to hand as to the structure and behaviour of the capillaries makes it doubtful whether the distinction would be a logical one. No sharp line, apparently, in relation either to structure or function, can be drawn between the ultimate arterioles and capillaries. At some point in the vascular system the response to histamine changes from the constriction, seen in the finest separable arteries, to dilatation; and whether we think of this change as occurring where vessels are still anatomically called arterioles, or at the level where arterioles are branching into capillaries is of comparatively little moment. That the capillaries share in the dilatation seems to be beyond doubt (Doi[23]).

The evidence I am putting before you is nearly five years old, and I have forborne to trouble you with details. My immediate object is to point out to you that it involved somewhat new assumptions, concerning the nature of the capillary circulation, which the more recent, direct evidence has fully upheld. We were accustomed to the diagram in which the gradient of the blood pressure fell ever more steeply as the blood passed into finer and finer arteries, to become suddenly flattened and almost horizontal where the arterioles branched out into the relatively enormous capillary network. This conception, and the corollary that change in the tone of the capillaries, if it occurred, would have little effect on the peripheral resistance, and hence on the arterial pressure, would be inevitable on the view that a large proportion of the capillaries were regularly open for the passage of blood. Our conception of the capillaries as the site of an important part of the peripheral resistance, so that the steep portion of the pressure gradient was shifted to cover the arterial side of the capillary zone, necessarily involved the assumption that only a very small proportion of the available capillaries are simultaneously open under normal conditions, so that no great and abrupt increase, of the total sectional area of the path open to the blood, occurs in passing from arterioles to capillaries. This assumption, which was vital to our argument, was unfamiliar at the time, and, I believe, made it difficult for many to accept our conclusions. Krogh's work has provided its much needed justification by direct evidence.

There was a further inference, of much greater significance, to which this conception of the capillary circulation necessarily led us. In dealing with the simple vaso-dilator action of small doses of histamine we had supposed that the small proportion of capillaries which, at the moment, were actually transmitting blood, underwent a dilator relaxation, with an effect resembling an arterial dilatation in all but quantitative details. If such a reaction should spread beyond the immediate path of the blood and involve the whole of the capillary network, so that all the capillaries in the body became simultaneously relaxed, the mere capacity thus developed should, we argued, be sufficient to accommodate practically the whole of the blood at the periphery, where a large part of it would lie stagnant, removed from effective circulation. I have already shown you how Krogh's actual measurements, subsequently published, have given a quantitative reality to this conception of the capacity of the generally dilated capillaries. The condition so produced would correspond exactly with that which Laidlaw and I had for some time been studying, and which followed the injection into an anaesthetized cat or dog of a large dose of histamine.[32] The circulation failed, in this instance, not because the peripheral resistance was low, but because the output from the heart gradually fell to minimal proportions. The muscular action of the heart, and the tone of the arteries remained good; the output, and with it the blood pressure, failed because the blood was accumulating at the periphery, in dilated capillaries and venules, while the larger arteries and veins were alike collapsed and empty. The shortage of the blood available for circulation was accentuated by a phenomenon which, again, the more recent work of Krogh has brought into the scheme of the general physiology of the capillaries. We found that the capillaries became not merely relaxed in tone but abnormally permeable. We were inclined, not realizing the importance of the contractile cells as responsible for capillary tone, to regard the relaxation and the morbid permeability as due alike to poisoning of the capillary endothelium, as Heubner also had assumed in describing a very similar condition. It would appear from Krogh's observations that not only the diameter of the capillaries, but the power of the endothelial wall to retain the constituents of the blood is conditioned by the maintenance of an adequate tone by the Rouget cells. Loss of capillary tone, however produced, seems to result in oedema in the area of relaxation. To what extent the abnormal permeability, which we observed, is the result of the loss of the supporting tonus of the Rouget cells, directly modifying the porosity of the endothelial filter, and to what extent, on the other hand, it is due to a poisonous action on the endothelium, or to secondary nutritional changes, caused by the inefficient circulation, is a matter on which evidence is incomplete and difficult to procure. That increase of permeability due to relaxation of tone is an important factor, is strongly suggested by the rapidity with which the loss of plasma through the capillary walls appears; within a few minutes of the injection of histamine as much as one-half of the plasma may have passed from the blood vessels, probably leaving many of the capillaries clogged with a viscid corpuscular cream.

This picture of the histamine shock, which I believe to be the picture of a condition having a wide pathological and clinical importance, was drawn by us chiefly from data obtained by macroscopic methods—measurements of blood pressure, of blood volumes both general and local, of changes in corpuscular content. It has been closely confirmed by the microscopic observations of Hooker[20] and of Rich[33] in America. Inchley[30] has quite recently raised the question of constriction of the venules as the essential factor in pro-

ducing the condition. That constriction of the smaller veins occurs irregularly when the shock is already well advanced, and the circulation is reduced to a slow trickle, was observed by Laidlaw and myself. The venules, properly so called, are shown by the microscopic observations of Hooker and of Rich, as well as by our own naked-eye description, to be dilated and full of blood. When once the peripheral stagnation has occurred, it is obvious that a constriction of the arteries, on the one hand, and of the veins on the other, if it occurs, will intensify the condition and render recovery from it more difficult; but I am still convinced that the primary and essential factor is the loss of the tone of the capillaries.

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ON LIMITATION OF EFFORT IN HEART DISEASE.*

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THIS subject is one on which medical opinion, both individual and collective, has never been uniform, and is by no means uniform now. Fifty years ago, while Oertel sent patients with serious heart disease to climb mountains, the general trend of practice was seriously to limit all who showed either murmurs or irregularities, let alone more obvious signs and symptoms; and it was further very generally assumed that once restricted meant always restricted.

Of late years murmurs have been perhaps too much discounted, for the pendulum is apt to swing, while the differentiation of the irregularities—which, apart from evidence of physiological efficiency, throws more light upon this question than any other single consideration—is as yet not fully comprehended except by those who have made it a special study. It is not a simple matter, and the busy practitioner welcomes something simple and easily recognized to guide him. And the latter-day specialists—or some of them—have given him a sign which seems easy enough to recognize, and which has to some extent replaced the systolic murmur. The sign is enlargement.

ENLARGEMENT OF THE HEART.

I had intended, as a prologue to this paper, a short discussion on enlargement, but the subject is too wide for such treatment, and it may suffice to say that—(1) it is often impossible to differentiate between dilatation and hypertrophy, or the amount of each in a given case; (2) data are as yet very incomplete as to the variations in size and position, and of the movements of the heart as a whole within the thorax in different positions of the body—matters which probably vary at varying ages and in different types of individuals; and (3) all the means at our disposal for estimating the size of the heart are open to fallacy. Percussion is perhaps the least reliable, for differing outlines are often drawn by two or more skilled observers. The results of palpitation seem obvious, yet may be quite unreliable, for, apart from displacement, an impulse (presumably conducted) is sometimes felt well outside the nipple line when a skiagram will show the heart to be well inside it; and yet skiagraphy is often discredited because of its tendency to exaggerate the cardiac area.

In connexion with enlargement I would submit that—(1) it is easy to make mistakes as to size, (2) the condition may be temporary, and (3) many permanently and considerably enlarged hearts may be safely allowed such effort as is comfortably tolerated. I could cite cases illustrating all these points, but space forbids, and one must suffice.

What the evidence was I do not know, but presumably it must have been convincing, as three different R.A.M.C. boards, each confirming the previous decision, threw this officer out of the army in 1919 on account of "cardiac debility with great enlargement," and he was told that he must, for the rest of his days, lead a very quiet life. As he had been used in earlier years to climb mountains and wanted to do so again, he came to me in 1920, because he had been told that I was interested both in mountains and in hearts. I found him in poor condition generally, the result of illness and war conditions, and he had a systolic murmur, but I found no evidence of cardiac enlargement, and a skiagram by Dr. Robert Knox showed a heart of normal size. Clearly the army boards were mistaken, or else the enlargement was temporary. I allowed him to do some mild climbing in 1920, and it improved his condition wonderfully; while in 1921 I let him climb as much as he liked, when he made some fine ascents and came back very fit indeed. In 1922 he was a distinguished member of the Everest expedition, was never sick nor sorry for a day, and now looks ten years younger than he did in 1920.

GENERAL CONSIDERATIONS.

How difficult it often is to decide on the amount of liberty that may be safely allowed to a heart patient is evident, and it is hardly surprising that different practitioners should take different views. But that extreme divergence of opinion should be possible on individual cases—a fact that both we ourselves and the public recognize—does not bring credit to the profession. It should not be; and I offer this paper as a small contribution towards what I trust is a reasonable attitude.

To impose sufficient restriction "to be on the safe side" is the easy solution of each case; yet *needlessly* to restrict is not only to disobey the Golden Rule, but to depress the patient's health and spirits, to limit his life and his interests, to lower his money-earning capacity, and to bring anxiety to himself and his family. These are considerations which should ever be present in our minds when dealing with these cases, and I think it is good to form the habit of asking oneself before giving a decision, "Can he safely be allowed to do more?"

In approaching any individual case the first point to settle is whether it is or is not a cardiac case at all, or whether it is a mixed case. Dyspnoea on exertion at once suggests the heart; but many other conditions may be causal or contributory, and, though cardiac weakness may be present, it may be secondary. Chlorosis, pernicious anaemia, and the secondary anaemias of malignant and other serious diseases are not only direct causes of dyspnoea, but also of cardiac weakness, from lack of healthy blood supply to the coronaries. Phthisis and emphysema are probably not often overlooked, but a quiet pulmonary effusion may exist without suggestive symptoms; while, in cancer of the lung, dyspnoea is sometimes the earliest symptom and the one which brings the patient to the doctor. And then there is Graves's disease and the "effort syndrome," in which the heart is rapid and feeble, but only as part of a general asthenia—a mixture probably of neurasthenia and endocrine anomaly; and there is Addison's disease itself, and diabetes. In the early stages of many of these disorders breathlessness may be a prominent symptom, and the heart may be suspected, and perhaps there is a murmur. It behoves us to be wary and look all round.

And now let us come to the cases in which the heart itself has been carefully isolated as the seat of such mischief as there may be, and we shall find that each case demands individual consideration, and that the degree of effort restriction requisite varies from *nil* to complete immobilization; though even in the worst cases the hope may

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generally be given that severe restriction may be only temporary—a rider to the verdict which often brings the greatest comfort to a mind perhaps suffering from the fear of sudden death, or (what is to some natures an even more dreaded development) permanent invalidism.

SINUS ARRHYTHMIA AND MINOR ANOMALIES.

The cases in which no restrictions at all need be imposed, beyond the avoidance of what causes obvious distress, are found in the lesser degrees of all kinds of heart lesions, and in patients of all ages; they include a large proportion of the "nervous hearts," the palpitations due to extrasystoles, and, in my view, many of the minor anginas. But the commonest case in which we can do the greatest service to the patient occurs where the irregularity of childhood and youth, due to sinus arrhythmia, has caused alarm to parent and doctor. Many such patients are prone to faint, the irregularity of heart and pulse may be extreme, and there may be a mitral systolic murmur either while recumbent or erect, or, much more rarely, both; and yet complete liberty may be safely given, governed only by the general after-effects of exertion, equally applicable to patients who have typically normal hearts. The essential thing is to be able to recognize the rhythm, and its recognition is extremely easy. In the first place, it is by far the commonest irregularity of childhood and youth, and the subjects, though they may be prone to syncope, do not faint when they are playing football, but do so on being vaccinated or having a thorn extracted, or on hypodermic medication, or on seeing someone else subjected to some similar procedure, or sometimes from close atmosphere, or from obviously emotional causes. The condition is due to vagal influence, and affects both auricles and ventricles. Exercise sufficient to quicken the heart's action abolishes the irregularity, and is a useful test. Again, the rhythm often bears a direct relationship to respiration, while in periods of regularity the respiratory phases can be readily elicited by telling the patient to lie down and take long breaths, when the pace will be found to get quicker during inspiration and to slow down during expiration, and during the pause that follows if the patient is directed to hold his breath before taking a fresh one. This is a test of great value to apply to all youthful heart patients, whether they show obvious irregularity or not, for sinus arrhythmia, whether spontaneous or induced, is strong presumptive evidence of healthy heart muscle. Unfortunately it is rarely found after 20, and is very rare in later years.

AURICULAR FIBRILLATION AND SERIOUS DISEASE.

Leaving these innocent cases with the reminder that countless children have had their school days spoiled, their health depressed, and their characters emasculated by needlessly imposed restrictions, I propose to jump to the other end of the chain, and consider the cases which, on account of the severity of the symptoms, must obviously, for a time at all events, be confined to bed; and a comprehension of the two extremes will be a guide to all that lies between them. Such cases are the bad anginas; the heart-block cases with a ventricular beat below thirty; some of the tachycardias; some of the fatty hearts; the infective affections of endocardium and valves; and severe phases of the valvular lesions. But the main element in them all is the lowered efficiency—and very generally the definite disease—of the myocardium. Many of them have dropsy of the legs and albuminuria, enlarged liver, and pulmonary oedema, and many have a fast and irregular pulse.

In a recent paper Lewis has laid down the axiom that no practitioner is a fit person to undertake the guidance of heart cases unless he can recognize and differentiate between the various forms of arrhythmia and is conversant with their significance. Fortunately, there is no reason why any practitioner should not learn very quickly and very easily to recognize them, though it must take much study to understand them as fully as is desirable. We have seen already how easy and how important it is to distinguish sinus arrhythmia, and so it is with auricular fibrillation. Practically all the severe cases of heart disease which show a rapid irregular pulse are instances of auricular fibrillation; and, whatever the cause—whatever the valve lesion, if any—the importance both as to prognosis and treatment depends on the fact that this rhythm occurs only with a damaged myocardium, which will never again be a sound one, and yet which is, perhaps more than any other serious heart anomaly, susceptible of improvement under treatment.

The bearing of fibrillation on the heart's capacity for effort is all-important. Not only must the condition be recognized, but the effects of treatment must be known; as, in nineteen cases out of twenty, the possibilities as to a more or less normal life will depend absolutely on the proper treatment of the case with drugs. Consequently, a short recapitulation of some essential points as to diagnosis and treatment seems necessary before formulating rules for effort.

The irregularity of fibrillation is generally easily recognized by what is called its "absolute" character, which means that no two consecutive beats are of equal length and volume—a point best demonstrated by instrumental tracings, but generally recognizable by the finger and the stethoscope. Sometimes the pace and the irregularity are so extreme as to amount to what is called delirium cordis. In other cases the rhythm is only moderately disturbed, but in these the irregularity is increased by exertion, and it is the *only* irregularity which is so increased. These points generally suffice to establish the diagnosis, and they mean that the auricle is practically paralysed—for it remains in a state of diastolic dilatation, and becomes a mere reservoir. The rhythm, always sudden in onset, is sometimes temporary, but if so it tends to recur, while far more frequently when once started it is permanent.

Auricular fibrillation can often be stopped and the normal systole restored by quinidine—a remedy derived from cinchona. But the effect is only temporary, and we do not yet know if it can be safely continued indefinitely, while we do know of definite dangers connected with its use. Digitalis, which *can* very generally be continued indefinitely, is likely to remain the sheet anchor. Though it does not restore the auricular systole, yet, in the vast majority of cases, by diminishing the conductivity of the "bundle," it slows and steadies the ventricles to such a degree that many cases assume what feels to the finger at the wrist an almost normal rhythm; but this result will not be attained unless the drug is given in adequate doses: 3 or 4 drachms of the tincture (3 generally suffices), or an equivalent of some other preparation, should be introduced into the system as quickly as possible. Twenty minims every four hours, but stopped if the pulse came down below 70 or if vomiting occurred, was Mackenzie's classic rule; but in urgent cases a drachm (or even 2 drachms) may be given as an initial dose and repeated at six-hourly intervals till 3 drachms have been administered. Perhaps the best routine is to give an initial drachm and begin the 20-minim doses six hours later. As a rule the pulse comes down to below 80 in two or three days at the outside, and the chief symptoms clear up very quickly. The drug is then discontinued for a few days and recommenced in much smaller doses—perhaps 10 minims once a day or on alternative days. The minimum dose to keep the pulse below 80 should be discovered, and then continued indefinitely. Practitioners are sometimes nervous about giving the large initial doses in cases of high blood pressure, and apprehensive of the "cumulative effect" of long continuation of the smaller doses. But they need not fear in either case; for digitalis does not increase the pressure, and the first effects of overdose (a pulse below 60, "coupled beats," or vomiting) are easily recognized; and if "cumulative effect" does harm, it must clearly be by overdose. Nausea is a warning to attend to liver and digestion, and to stop the drug for a week or more, but watchfully, recommencing if the pulse rises above 80.

We are now in a position to consider the permission of graduated effort in cases of fibrillation, and the rules apply equally to the other severe cases of heart disease where complete rest is obviously necessary at first. If the symptoms fail to improve under appropriate treatment, the outlook is bad; but if they do improve, we may begin to let the patient move about the room; then on the same

landing; then out of doors—walking, or in chair or vehicle, but sleeping on the ground floor, or carried upstairs, though walking down; then walking up a short flight of stairs once a day, then twice, but always walking upstairs first and then down, before walking down and then up—and one begins with not more than half a dozen steps, perhaps at first taken walking backwards. The same rule applies out of doors on gentle inclines and later on steepish hills—always up first and down back, and always turning back as soon as distress begins. The plan, of course, is obvious and is used by every practitioner, but such patients need "rules" more perhaps than any other class of case. They often feel so well (within their limit) that not only are they prone to give up taking their digitalis, with disastrous results, but are apt to think that they can do anything, and that restrictions are needless. And restrictions are *always* needed. They can be led from stage to stage—some further, and some not so far, but in no case can they have full liberty. The doctor's aim should be to lead them as far as is safe in the path of freedom, and then to tell them to keep within this limit, possibly with the hope of further liberty later on.

I have found it convenient to divide the extremes of human effort into seven degrees: (1) Complete rest in bed. (2) Movement on the level. (3) Quiet ordinary life. (4) Mild gardening, gentle golf, and slow hill-climbing, or easy manual labour allowed. (5) Any effort short of extreme exertion. (6) Full liberty of full health. (7) Exceptional effort only possible for athletes in training.

With regard to cardiac cases, the first four come into daily consideration, and occasionally the fifth. But it must not be supposed that one jumps from one stage to the next; progress must always be gradual, and in the early phases of convalescence from heart failure the greatest caution is needed, each step being taken tentatively, with the knowledge that one may have to go backwards and forwards before giving liberty on the next platform. Further, such patients have their good days and their bad days, and must be cautioned when off colour, or on a very hot day, or a very cold day, or after a bad night, or after some unsought strain, either physical or emotional, to go easy for a day or two, and not push on with the idea that it is "giving in" to do less to-day than they did yesterday. Again, women must regard the menstrual periods, and should take life very gently at these times, and generally take a day or two in bed. Many cardiac patients are well advised to breakfast in bed as a rule, and perhaps to have a midday rest; and some require to take a rest day once a week, while all must be cautioned not to undertake exertion immediately after meals, and never to hurry. All must be careful also to feed simply, to take mild aperients if needful, and to avoid, as far as possible, catching colds and the like. Subject, however, to these limitations, and to such as may be indicated by individual susceptibilities, requirements, and inclinations, many cases of marked heart failure—with or without fibrillation—who may have to be kept in bed perhaps for several weeks, may be given the hope that they will eventually be able to live a life of usefulness and of enjoyment.

I have a patient, aged 55, who has had fibrillation for at least ten years, who has a somewhat enlarged heart with definite valvular and myocardial disease, and who has had an attack of paraplegia with aphasia (embolic). Yet he has married in the interval and has two children. He drives his own motor (self-starter), goes out for a quiet day's shooting on fairly level ground, and lives a very satisfying life. It is comforting to know that second attacks of cerebral embolism are extremely rare, and this assurance has been of the greatest benefit to this patient, who at one time suffered much from continual apprehension that another "stroke" was inevitable.

THE HEART'S ENERGY AND RESERVES.

The amount of blood in an average human adult body is about 8 pints and weighs about 10 lb., and the whole of it is driven through the entire circulation, at the normal pulse rate, once in every 40 seconds, in an individual at rest (Haldane). This means that twelve pints of blood (six by each ventricle) are propelled by the heart every minute, or over two thousand gallons, weighing about ten tons, per diem—a truly prodigious display of energy. And yet this is but a minimum, which is increased several fold as muscular work is undertaken; for, given sound muscle wall and healthy coronaries, the reserve capacity of the heart is very large. Of course, as age creeps on there is some loss of elasticity, and the margin is reduced, while in a damaged heart this is further encroached on. Yet such is the reserve that many seriously damaged hearts, even in advanced age, possess margin sufficient for the calls of a quiet life.

Another way of appreciating the amount of work performed by the heart is to compare it with the hand, which can, with a Higginson syringe, only pump a pint and a half of water a minute, and which, even when working a Junker's inhaler at 60 or 70 contractions a minute, tires after two or three minutes, so that one is glad to change hands. Of course, the comparison is not a fair one, for the hand is a marvellous mechanism, and is capable of playing five or six hundred separate notes on the piano in a minute, while, on another score, it is seldom recalled that the "tireless heart" rests for about twelve hours out of the twenty-four. Between each beat it pauses, and whether it beats fast or slow, it rests for about half the time, though at high rates it is diastole which is chiefly encroached on. The value of securing, if possible, a pulse of moderate rate in a weakened heart is obvious, and is further appreciated if one considers the number of systoles that can be saved in a day; for while a normal pulse rate means about a hundred thousand systoles per diem, a pulse of 100 is roughly half as much again. In relation to cardiac muscular exertion this would mean one and a half times as much work; and though the rapid pulse of fever and debilitating illness probably obeys other laws, there can be no doubt that high frequency in a resting patient means waste of cardiac effort. Rapid action reduces reserve capacity, but unfortunately, apart from fibrillation, our means for dealing with this state are singularly meagre, and often ineffectual.

INDIVIDUAL SYMPTOMS AND LESIONS.

Before passing to some brief remarks on individual conditions, I would pause to observe that it is chiefly on general lines that the possibilities of effort limit in individual cases are best judged. Prior to the advent of gross evidence, such as swollen legs, albuminuria, enlarged liver, and obvious cyanosis, heart failure is generally ushered in by breathlessness or pain. In either case, no matter what the lesion, reduced effort as an initial step is essential; and, whatever the lesion, the amount of restriction must depend on the urgency of the symptoms, which, if severe, point to a preliminary period of rest in bed for a few days or for a few weeks, and seldom, in recoverable cases, for longer; while in many instances the initial limitation need not be so extreme. Each case must be judged on its own indications. There are, however, a few special conditions which require a special word.

The two varieties of arrhythmia which give direct guidance on effort limitation having been already discussed, a very few words will suffice for the remainder.

Extra-systoles, easy of recognition, and the commonest cause of irregular pulse in adults, occur in hearts both healthy and diseased, but in an otherwise healthy heart they do not call for restriction of effort. *Heart-block* of marked degree generally imposes its own limits, but the minor phases, if detected, indicate caution. *Paroxysmal tachycardia* is generally disabling during the attacks, which always start and end with absolute suddenness. Between the paroxysms the patient may do what he can manage comfortably, and may be trusted to do nothing which his experience proves to be unwise.

Much the same may be said of the *anginas*, though, in progressive cases, a period of five or six weeks of complete rest in bed often brings a respite, and delays advance. Attacks of true *cardiac asthma* commonly occur at night; and these patients are seldom pulled up by immediate distress, as are the sufferers from angina. But the symptom always means serious myocardial disease, and indicates continuous limitation of effort. For *congenital heart defects* no rules can be laid down; they range from the negligible to the rapidly fatal. But loud murmurs of congenital origin may be heard in hearts which are physiologically quite efficient for ordinary occupations. *Pulsus alternans* is seldom recognized, but is of grave import, and demands the utmost caution.

In acute fevers of all kinds the more completely the patient is kept at rest the better, and the heart should be watched for the intrinsic complications so common in rheumatic fever, but not uncommon in influenza, diphtheria, scarlet fever, and other microbic infections.

In *convalescence* there may be difficulty in deciding whether we

are dealing only with toxaemia, or whether the heart is more seriously affected. If there has been pericarditis or endocarditis, or if the intermissions of minor heart-block are detected, one can hardly be too cautious in the guidance of convalescence; but, with the "poisoned heart," so common after influenza and other acute infections, even though there may be a systolic murmur and perhaps some dilatation, it is a mistake to keep the case in bed after the temperature has been normal for a day or two. In such states the heart recovers its tone much more quickly if the patient is got up and got out pretty soon, and encouraged to take such exercise as brings with it a sense of well-being.

The *valve lesions* give us certain indications, the chief being that while those causing systolic murmurs may be treated on general lines, and the murmur often ignored, the diastolic murmurs always carry a special warning, because the lesions giving rise to them (mitral stenosis and aortic regurgitation) are apt to be progressive, and also because, apart from any previous myocardial change, both lesions interfere with the efficient nutrition of the heart through its coronaries. Such patients may feel very well and equal to anything, but, while they may be allowed to undertake ordinary efforts according to their inclinations, they should be warned against excessive strain, and precluded from occupations involving sudden or severe effort.

In *infective endocarditis*, whether acute or subacute, the patients are generally so ill that the question of allowing effort hardly comes in. But if it should arise, the sufferer may safely be allowed to be in or out of bed—indoors or out of doors—as he prefers. Up to now no cure has been discovered, and as these diseases are invariably fatal the sufferer should be allowed to live the life that brings him most comfort and contentment.

I have left to the last the terrible thing called "blood pressure." I have used the instrument since long before it was a fashionable adjunct to the consulting-room, and occasionally I get useful information from it; though, if one makes a guess at the systolic pressure before taking it, it is easy to be fairly right nine times out of ten. Sometimes one finds the pressure lower than was anticipated; but "blood pressure" means to all patients "high pressure," and it obsesses many doctors, and needlessly alarms many patients. One sees people die of cerebral haemorrhage with a pressure of 150, while many people with a pressure of 180 to 220, or even more, live for years in excellent health, until "the fear of death" is put into them by some member of our profession, who tells them they have passed the "danger level," and they live ever after with the feeling of the rope around the neck. And "well set-up" people come to us and in reply to the inquiry as to what ails them, simply say "blood pressure." I am looking at a note reading thus: "Mrs. H—, March, 1915, aet. 80—B.P. 220—Sep. 1918, B.P. 180." She took no precautions and few drugs, and she ate and drank what she liked, moved about as she liked, and died in 1921 of bronchitis and patchy pneumonia. I could cite many similar cases, and such people may only feel at their best when their pressure is highest, which is reasonable, as it is then that their coronaries fill best and that pressure is sufficient to force the damaged glomeruli, for the kidneys are seldom unaffected. By all means let early arteriosclerosis be recognized and reasonably treated and dieted; but do not let us put the fear of death into such people, or unduly limit their activities. All tissues retain their elasticity and *life* longer if they are kept in active use; and my belief is that these cases live longer and in better health if they are allowed to take such exercise as they find agreeable.

CONCLUSION.

In conclusion I turn to one or two more generalities, and the first is that every one of us is sure to make mistakes; for, apart from those which we ought to avoid, there are two sources of error which may be unavoidable. People sometimes die suddenly of heart disease who have never had a symptom, and some such cases have been examined within a few months or weeks of their death by the ordinary methods without any abnormal sign being discovered, or anything to suggest that an examination by electrocardiograph (which might have shown something) was indicated. I have seen many sudden deaths from heart disease, but only two of this kind in which a necropsy was made. In one there was a ruptured aneurysm of the left ventricle, while the other showed degenerated heart wall, especially on the right side.

The second source of error is of happier augury, for we all occasionally see patients who we think will not survive for many weeks, but who live for years.

I have to-day seen a lady of about 70, who ten years ago was at death's door. During all these years she has had fibrillation, extreme cyanosis, and dyspnoea, and grossly oedematous legs, which often ooze; yet she is marvellously cheerful, and goes up and down stairs on the sly, when she can cheat her guardians. Of course she has been taking digitalis all the time. Had I lost sight of her I should certainly have supposed that she had been dead for many years.

Though mistakes will be made, I believe, however, that it is possible, by a careful all-round survey, to be right in nine cases out of ten; and I think that in framing a prognosis, and with it general rules for effort guidance, the general practitioner who has kept abreast of the times, and who has formed the habit of making short notes, has somewhat of an advantage over the specialist who only sees cases in hospital and in consultation. For we can follow up our cases for ten or twenty years, and watch the slow and often surprising sequence of events—an invaluable experience which is, in the majority of their cases, automatically closed to the specialists, who, I believe, often conclude that the patients of whom they hear nothing are dead. But I am very familiar with the great difficulty of following up cases seen in consultation. The doctor in charge always says he will let one hear how the case goes on, and he means to do so. I fear we are all offenders in this matter.

I began with a warning on an old subject (enlargement) and I end with a warning, which time will prove to be right or wrong, upon a new subject. When the stethoscope had revealed the various heart sounds, and their meaning became gradually elucidated, conclusions based on the integrity of the valves dominated cardiology for many decades and led to views many of which are to-day discredited.

With the advent of the polygraph and the electro-cardiograph, the myocardium has come to its own, and it now dominates. This is, in my view, as it should be; and yet I would venture to predict that some of the anomalies of myocardial activity revealed by the electro-cardiograph, and on which discouraging conclusions are now based, will be proved by time to be either of a temporary nature or else of comparatively minor importance, and well within the great reserves which the heart possesses. As an example of the kind of harm that may be done, let me cite a final case.

A lady, aged 36, suffered from palpitation and irregular pulse, and her doctor, unable to differentiate the rhythm, sent her to a specialist, who examined her very thoroughly. I have seen his very excellent report. The irregularity proved to be of a very unusual kind in a person of her age, being a mixture of sinus arrhythmia and extra-systoles. These, he said, might be safely disregarded, and a skiagram showed a heart of normal size. So far no harm had been done; but the blood pressure was high for her age (155) and the electro-cardiograph showed left-sided preponderance, and from these data he concluded that the myocardium was permanently damaged, and enjoined that "for the rest of her life she must keep this fact in mind and live well inside her limited capacity for effort." She has always lived on these lines, for she has no taste for sport, and has no temptation to undertake excessive toil. But she received a shock, and now suffers from "heart upon the brain." She is becoming neurasthenic, and, finding herself easily tired by efforts which two months ago were not only tolerated but enjoyed, is convinced that her decline of vitality is due to heart disease, that her days are numbered, and that she can never live a normal life again.

The baneful and far-reaching effects of fear should ever be before us, as should be also the tonic effects of hope and reassurance, and the possibilities of improvement which come to all muscles, the heart included, when allowed free activity within the range of pleasurable reaction.

Each case must be looked at all round: no single sign should be given undue weight; but if there is any one point which may be allowed to override the others it is the one to which least attention is often paid—and that is the physiological capacity of the heart, as proved, not so much by set tests, as by careful inquiries and cautious experiment as to the individual patient's capacity for effort in the ordinary calls of life.

THE INFLUENCE OF THE THYROID GLAND ON THE RESPONSE TO ADRENALINE.

BY

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AT the present time a series of satisfactory tests for functional efficiency is amongst the most urgent needs of the practical physician. Unfortunately most of the tests introduced are so elaborate and require so much apparatus that they can only be performed in well equipped hospital laboratories, and are consequently lost to the general practitioner and his patients. One of the best examples of this need is in the so-called border-line cases where the diagnosis lies between a minor degree of thyroid overactivity and a neurosis. The estimation of the basal metabolic rate gives a measure of the thyroid activity, but this method of examination is confined at present to hospital practice.[1] A close relation between the state of the thyroid gland and the action of adrenaline has long been known to exist, and Goetsch has made this the basis of his test for hyperthyroidism.

In animal experiments it has been shown that removal of the thyroid gland lessens the response of the subject to a subsequent injection of adrenaline, and conversely that the administration of thyroid[3 4 5 6] enhances the adrenaline reaction. Stimulation of the cervical sympathetic, by causing active secretion from the thyroid, produces a similar effect.[6] In these cases the thyroid hormone is believed to sensitize the sympathetic nerve endings to the action of adrenaline. Eppinger and Hess,[7] Barker and Sladen,[8] and Lehmann[9] have shown that these results hold good for man also. Goetsch[10] gives as a standard a dose of 0.5 c.cm. of 1 in 1,000 adrenaline chloride subcutaneously, and notes in the patient the changes produced in the blood pressure and pulse rate. The typical positive reaction is "a rise of about 10 points in pulse or in systolic pressure or in both, together with certain clear-cut subjective and objective symptoms" (palpitation, tremor, apprehension, etc.). The merits of this reaction have been widely discussed and much adverse criticism has appeared.

Plummer[11] believes that thyroxin quantitatively controls the rate of cellular metabolism, but he has pointed out that the supposed relation between thyroid and adrenals can be explained on grounds involving the rate of blood flow, entirely apart from any other action. A similar position is taken up by Kendall[12] when he states that, "if viewed purely from a consideration of the physics involved, the injection of adrenaline into a subject with a normal basal metabolic rate will be necessarily different from injection of the same quantity into a subject with a metabolic rate 30 per cent. above normal." Aub[13] also rejects the theory of specific sensitization and decides that the thyroid is not an essential factor in the action of epinephrin and that the effects of thyroxin and epinephrin are distinct and not interdependent. It is interesting to note that Marine and Lenhart[2] continued to get an increase in metabolic rate after administration of adrenaline to rabbits previously deprived of the thyroid gland. Sandiford,[14] who reports 46 observations in 39 patients, found no relation between the intensity of the adrenaline reaction and the condition of the thyroid; and she doubts if there is any sound physiological foundation for the belief. Other observers have found that positive reactions are frequently obtained in non-goitrous subjects. A number of physically fit, symptomless students examined by van Wagenen[15] showed a positive response in 20 per cent., and Tomkins, Sturgis, and Wearn[16] found 65 per cent. of positives in cases of irritable heart (in which condition the basal metabolic rate is normal[17]). Herring, reviewing the subject, sums up the position thus: "The specific action of the thyroid in sensitizing tissues amenable to adrenaline, though not improbable, is not yet proved."[18]

The present position[19] of the adrenaline test appears to be that a negative finding is valuable in definitely excluding hyperthyroidism, whereas a positive result is of less significance, since it is frequently got in cases where no evidence of an overacting thyroid exists.

Details of Investigation.

The question has recently been investigated in a number of patients in the medical wards of the Edinburgh Royal Infirmary. The cases examined include four hypothyroid patients, seven with exophthalmic goitre, three asthmatics, five diabetics, and several others who showed no obvious sign of endocrine disturbance (some fifty examinations in all). The subjects, having fasted overnight, were allowed to rest quietly with the mask adjusted for thirty to sixty minutes before the records were started. When the pulse rate and blood pressure readings had fallen to a steady level a sample of expired air was taken for the estimation of the basal metabolic rate. A subcutaneous injection of 0.5 c.cm. of a 1 in 1,000 solution of adrenaline chloride (P. D. and Co.) was then given, and thereafter the pulse and blood pressure were estimated at two-minute intervals, and the expired air was collected over successive ten-minute periods for an hour.

TABLE I.

Metabolic Rate.*		Blood Pressure.			Pulse.			Diagnosis.
Bas.	Max.	Bas.	Max.	Inc.	Bas.	Max.	Inc.	
122	143	140	160	20	104	137	33	Exophthalmic.
120	150	148	183	35	105	152	47	Exophthalmic.
120	150	142	186	44	102	148	46	Exophthalmic.
120	152	135	157	22	106	131	25	Treated myxoedema.
119	154	125	150	25	71	86	15	Neurasthenia.
118	153	135	146	11	100	132	32	Asthma.
63	72	115	120	5	78	94	16	Untreated hypothyroids.
64	123	119	132	13	57	78	21	
64	73	110	139	29	69	111	42	

Bas. = Basal; Max. = Maximum; Inc. = Increase.

* In order to facilitate comparison the Du Bois normal is taken as 100 and the figures found are given as 122 and 63 instead of the more usual + 22 and − 37.

The influence of the state of the thyroid on the character of the response to adrenaline has been investigated in two ways: (*a*) by comparing the reactions in different subjects, and (*b*) by examining the same individuals on more than one occasion.

(*a*) *Reactions in Different Individuals.*—When viewed as a whole, these show little relation to the activity of the thyroid as determined by the basal metabolic rate. A large cardiovascular response may be present in a patient with a low metabolism and vice versa. The majority of the subjects gave a positive response as estimated by Goetsch's criteria, and only four showed an increase of less than ten points in the blood pressure. The lack of uniformity can best be shown by a comparison of patients with approximately similar basal metabolic rates. Two such groups are recorded in Table I. It will be noticed that even in the cases of untreated hypothyroidism all the reactions save one are greater than ten points.

(*b*) *Reactions in the Same Subject.*—If it be true that thyroxin sensitizes the body to the action of adrenaline the effect should be evident when the amount of the thyroid hormone in the patient is varied. Table II gives the results of the examination of four subjects before and after the administration of thyroid extract. Two of the patients (1 and 2) were cases of myxoedema with very low metabolic rates; the other two suffered from asthma. Of the latter, No. 4 showed rather high basal figures, while No. 3 was

TABLE II.—*Cases Given Thyroid Extract.*

Case.	Date.	Metabolic Rate.		Blood Pressure.			Pulse.			Diagnosis.
		Bas	Max.	Bas.	Max.	Inc.	Bas.	Max.	Inc.	
1	Aug. 23	64	123	119	132	13	57	78	21	Myxoedema.
	Oct. 4	106	163	120	140	20	69	91	22	
2	June 2	63	72	115	120	5	78	94	16	Myxoedema.
	July 5	120	152	135	157	22	106	131	25	
3	Aug. 22	107	135	136	150	14	98	124	26	Asthma.
	Aug. 31	118	153	125	146	21	100	132	32	
4	Aug. 25	114	144	186	208	12	108	131	23	Asthma.
	Oct. 12	142	165	192	225	33	118	148	30	

TABLE III.—*Cases of Hyperthyroidism before and after Treatment.*

Case.	Date.	Metabolic Rate.		Blood Pressure.			Pulse.		
		Bas.	Max.	Bas.	Max.	Inc.	Bas.	Max.	Inc.
5	Aug. 9	120	159	148	183	35	105	152	47
	Sept. 1	120	160	142	186	44	102	148	46
	Nov. 1	102	142	142	152	10	76	124	*48*
6	Aug. 21	122	157	140	160	20	104	137	33
	Sept. 28	112	140	122	152	*30*	88	122	*34*
7	July 31	140	199	160	191	31	120	139	19
	Aug. 30	125	160	141	182	*41*	95	108	13

normal. The effect of the thyroid in raising the general activity of the body is evident in the increase of basal metabolic rate, basal pulse rate, and basal systolic pressure readings, while in those observations made after the giving of thyroid extract its sensitizing effect is shown in the great increase in the pulse and pressure seen in all instances except one.

Confirmation would be expected in cases of exophthalmic goitre examined at different phases of the disease. The results shown in Table III at first sight seem contradictory. The cases were first examined shortly after admission to hospital and were re-examined when the clinical condition had improved. On the subsequent occasions the basal metabolic rates had fallen greatly and the slowing of the pulse was even more marked, the reduction in the case of the basal systolic blood pressure being less evident. In case No. 5 the reactions to adrenaline agreed very closely on two occasions when the basal metabolic rate stood at 120. On the third examination, though the basal levels were much reduced, the post-adrenaline increases in metabolic rate and in pulse rate were practically the same as before treatment. Cases 6 and 7 showed a definite reduction in metabolic response, but in both patients the post-adrenaline blood pressure rise was greater and the pulse acceleration was little affected. Such results would suggest that the thyroid controls only the basal levels, while the reaction to adrenaline depends on some other independent mechanism.

Experimental proof of the interrelationship of the thyroid and the suprarenal seems to be complete. Adrenaline stimulates the thyroid to activity, and the thyroid hormone controls the rate of activity of the body tissues, including the adrenal glands. It is also believed that the thyroid sensitizes the sympathetic nerve endings on which adrenaline acts, so that an increase in thyroid activity should lead to an increased reaction to adrenaline. The existence of such a relation is more difficult to prove in the case of man. Table I has shown that the movements of pulse and blood pressure in no way parallel the activity of the thyroid from case to case, and even when allowance is made for size, body weight, age, and sex (as is done in computing the basal metabolic rate) no better results are obtained.

The effect of an injection of a drug must depend to a great extent on the rate of its absorption, and a good deal of the difference between individual cases may be explainable on this ground. In some persons the maximum rise is produced within six minutes after injection, while in others twenty or thirty minutes elapse before the highest point is reached. This can only be explained on the basis of a wide difference in the rate at which the adrenaline reaches the tissues on which it acts. The rate of absorption is closely related to the circulation rate, being most rapid in the hyperthyroid cases (where the venous blood often looks pink and arterialized) and slowest in those with deficient thyroids. The rate of absorption, then, has an extremely important influence on the result, for where the maximum occurs early it reaches a very high level, since a great deal of the adrenaline is in action at once. On the other hand, where absorption is slow only a limited quantity of adrenaline can be reaching the tissues at one time and its stimulating effect must be much less.

It is said that adrenaline acts quantitatively and that the injection of a series of similar doses produces uniform responses without fatigue. Hunt[20] showed that as increasing doses were given the response elicited was always a little less than was expected. This question has been reinvestigated[21] with regard to the blood pressure, and it has been found that the relation between the quantity of adrenaline and the effect produced is logarithmic. It has also been found that when uniform doses are given the magnitude of the response depends upon the level of the blood pressure from which the reaction started—for example, a dose of 0.2 c.cm. adrenaline given when the pressure stood at 136 gave a rise of 63, but a similar dose given at 246 produced only an increase of 18 mm. It will thus be seen that a rise of ten points in the blood pressure does not represent a uniform quantity of adrenaline under all circumstances—for example, to produce an increase of pressure from 190 to 200 requires a great deal more of the drug than to raise the level from 110 to 120. When applied to Table II this principle will have the effect of magnifying the increases actually obtained after the administration of thyroid; and in the case of Table III the apparent anomaly will diminish if not disappear, since the relatively large responses from a lower basal level are of less value than if from the original higher basal levels. Even when this allowance has been made, the differences in Table III fall far short of those in Table II, suggesting that the adrenaline sensitive mechanism still remains hypersensitive when the thyroid activity diminishes. (This might lend support to the view that the thyroid changes in exophthalmic goitre are merely secondary to a hypertonus of the sympathetic system.) If the two mechanisms are entirely independent, as Aub believes, an increase in thyroid activity would merely raise the basal levels and the adrenaline effect superimposed on these would have the same value whatever level the reaction started from. This does not fit the facts. The thyroid certainly does control the resting levels of pulse rate, metabolic rate, and systolic pressure, but it also sensitizes the tissues to the action of adrenaline.

Some of the points discussed may help to explain the comparative failure of Goetsch's reaction as a clinical test. The responses obtained from the injection of adrenaline reflect principally the tonus of the sympathetic system, which may or may not depend on the state of the thyroid. It would seem too that the criteria accepted are too low, since so many apparently normal persons give positive reactions.

Summary.

In a comparison of the metabolic and cardio-vascular responses to the injection of adrenaline in patients having similar basal metabolic rates no relationship between the reactions is obvious.

If individuals are examined on different occasions when their metabolic rates have altered, a change in the degree of response to adrenaline is noticed.

Administration of thyroid to a patient leads to an exaggeration of the reaction to adrenaline.

In cases of exophthalmic goitre a fall in basal metabolic rate is not accompanied by a very great reduction in the sensitiveness to adrenaline, and it is suggested that this depends on a persisting hypertonus of the sympathetic system.

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THE French Association for the Advancement of Science will meet at Bordeaux from July 30th to August 4th, with Professor Sabrazès as president of the Section of Medicine and Surgery, and Professor Auché as president of the Section of Public Health. Further information can be obtained from the Secretariat of the Association, 28, Rue Serpente, Paris.

AN international leprosy conference will be held at Strasbourg from July 28th to 31st, when the following subjects will be discussed: (1) new statistical data, (2) etiology, (3) pathology, (4) treatment, and (5) social and individual prophylaxis. Communications should be sent before June 10th to the General Secretary, Professor Marchoux, 96, Rue Falguière. Paris.

RECTAL PAPILLOMATA IN SCHISTOSOMA HAEMATOBIUM INFESTATIONS.

BY

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INTRODUCTION.

In his chapter on schistosomiasis in the latest edition of Manson's *Tropical Diseases* (1921) Manson-Bahr makes the following observation in relation to urinary schistosomiasis: "In a large proportion of cases, much more frequently than was formerly thought to be the case, the characteristic ova of *S. haematobium* may be found in the faeces (Fairley), though it has not yet been proved that they are capable of forming the intestinal papillomata so characteristic of *S. mansoni* infestations."

Our experience in Iraq is fully in support of the observation that ova of *S. haematobium* are commonly to be found in the faeces, but we hope in this note to demonstrate that it both can and does occasionally form intestinal papillomata. Our experience suggests, moreover, that the condition is not by any means a rarity. In the areas of Iraq infected with schistosomiasis rectal papillomata have been occasionally reported, but not until quite recently have we been able to obtain specimens for section.

FIG. 1.—Longitudinal section from the hypertrophic adenomatous portion of the growth, showing the papillomatous prolongations and numerous deeply stained ova in the tissues. Fixed in formol saline and stained with Ehrlich's acid haematoxylin and orange "G." (× 44.)

Three of these growths have been sectioned; in addition to the case about to be described Dr. Braham and Dr. Perry have both sent specimens of rectal papillomata to the Central Laboratory, Baghdad, for examination, and in each case the ova of *S. haematobium* were found on section.

The present case mainly differs from the other two in that the signs and symptoms presented left little doubt as to the causation of the new growth prior to its removal, and that, as will be seen later, adult worms in addition to ova have been found in the papilloma removed.

The patient, Hassan ibn Bairam, aged 26, a Kurdish coolie from Erbil, was admitted to the New General Hospital, Baghdad, on January 24th, 1923, with a diagnosis of "anaemia"; he complained of increasing shortness of breath on exertion for three months. He stated that he left Erbil for the first time six months previously, and had since been engaged in coolie work on the new cantonment in the course of construction at Hinaidi just south of Baghdad. He was insistent that he had been free from any symptoms whatever pointing to a urinary or rectal lesion until three months previously, when he first noticed a burning pain on micturition, and a month later a few drops of blood at the end of micturition. A week later he noticed the passage of blood and mucus by the rectum, a symptom which steadily increased in frequency up to the time of his admission to hospital. There was a history of occasional attacks of fever in Kurdistan, probably malarial.

Clinical Examination and Course of Illness.

The patient was a well built man with a pale "biscuit colour" complexion, and was obviously very ill on admission. The spleen was just palpable on deep inspiration; haemic bruits were to be heard on auscultation of the heart, and a few râles at both pulmonary bases. The temperature was 100° F., and the pulse 96. The result of a total and differential blood count was as follows:

Haemoglobin 60 per cent., red blood corpuscles 3,235,000 per cubic millimetre, giving a colour index of just under 1. There was a moderate degree of leucocytosis (13,800), the percentage of the respective white elements present being—

Polymorphonuclear leucocytes	55.4	per cent.
Lymphocytes	26.6	,,
Large mononuclear leucocytes	5.2	,,
Eosinophil leucocytes	12.8	,,

The patient at the time of admission was passing from six to ten motions daily. Naked-eye examination of the stools showed the presence of both blood and mucus, the former dark in colour, free, and greatly in excess of the latter. Microscopically the presence of an enormous number of the typical ova of *S. haematobium* containing active miracidia was noted.

Examination of a centrifuged deposit of urine showed many pus and red blood cells and a large number of live terminally spined ova. Digital examination revealed a papillomatous growth in the rectum just within range of the finger, and the presence of the tumour was confirmed by sigmoidoscopic examination. The growth was removed by Dr. Woodman on February 7th, and under intravenous administration of sodium antimony tartrate the patient is making very satisfactory progress.

FIG. 2.—Transverse section of the adenomatous portion of the growth. Tissue fixed and stained as in Fig. 1. (× 44.)

It is of interest in this case to note that though the infestation was heavy it was apparently of quite recent origin. Erbil is a town in Kurdistan, and as far as is known schistosomiasis does not exist in that country. The presence of an enlarged spleen in a Kurd is quite usual; so rife is malaria in Kurdistan that a Kurd with a non-palpable spleen is quite a rarity.

As to the exact origin of the infestation there is little to help in the history, but everything points to it having occurred either in the neighbourhood of Baghdad, where a focus of this disease undoubtedly exists, or *en route* from Erbil, though the chances of infestation north of Baghdad would appear to be remote. The degree of eosinophilia is higher than our average in urinary cases of infestation by *S. haematobium* in Iraq, but is possibly to be accounted for by the heaviness of the infection present in this case.

It might here be noted that, as far as our investigations have gone, *S. mansoni* does not occur in either Iraq or Kurdistan.

PATHOLOGY.

A specimen of faeces and the polypoid growth removed at operation were submitted to the Central Laboratory for examination.

A. *Examination of Faeces.*

Examination of the specimen of faeces revealed the presence of the typical terminal-spined ova of *S. haematobium* in large numbers, many containing miracidia showing considerable activity; pus cells and red blood corpuscles were present in moderate numbers.

B. *Examination of the Polypoid Growth.*

Microscopically the mass approximated in size to that of a small walnut; it was greyish-white, of firm consistence,

and presented a somewhat nodular surface showing considerable congestion, and in places what appeared to be small areas of superficial ulceration. No marked resistance was offered to the knife. On section the tissue showed a solid core with a marked peripheral radiating structure which on microscopical examination was found to correspond to the hypertrophic adenomatous portion of the growth.

Microscopic Examination.

1. *The Peripheral Portion of the Growth.*—Sections taken from the periphery of the polypoid growth show an advanced hypertrophic condition of the rectal glandular tissue, with the formation in places of long papillomatous prolongations of the mucosa. The supporting structure is loose, and consists of delicate strands of fibrous tissue, between which are to be seen numerous cells of the mononuclear type. Young thin-walled blood vessels are plentiful and in a condition of marked engorgement. In several places small collections of ova with deep-staining miracidia are to be seen in the interglandular tissue, and it is of interest to note that in the neighbourhood of such collections the cellular content of the tissue changes, the majority of cells in these situations consisting of polymorphonuclear leucocytes of the eosinophil type. In the transitional area between the adenomatous and the more centrally placed portion of the tissue are collections of ova

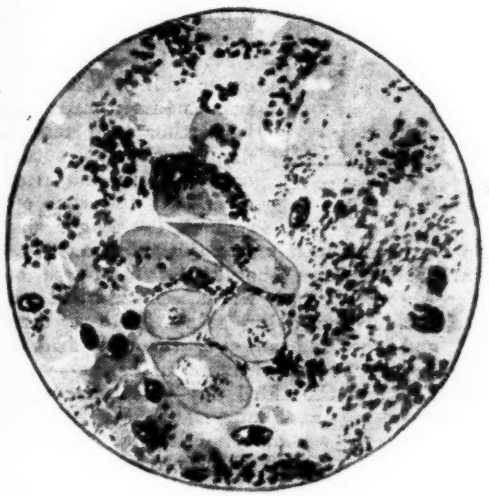

FIG. 3.—Section showing collection of embedded ova, one of which shows the terminal spine mentioned in the text. Fixed in formol saline and stained with Heidenhain's iron haematoxylin and orange "G." (× 206.)

which, from the failure of the miracidia to take the nuclear stain, would appear to be of less recent date. In such areas we find that the particular stimulus determining the calling forth of the eosinophil polymorphonuclear elements has ceased, the cells found in these particular areas being chiefly of the mononuclear type. Here also stimulation of the fibroblastic elements has taken place, with marked increased production of fibrous tissue and resulting attempts at encapsulation. Sections taken from certain superficial portions of the growth fail to show the adenomatous structure above described; it is replaced by a tissue presenting the appearance of granulation tissue in which numerous ova are present; blood vessels are numerous, and ulceration of the surface is apparently occurring. It is from areas such as these that ova would appear to be liberated into the lumen of the bowel.

2. *The Central Portion of the Growth.*—In this area the glandular structure above described is entirely absent. On the other hand, the fibrous tissue elements show considerable increase, forming a well marked stroma in which numerous ova of various ages are embedded. Here again variation in the cellular content of the tissue is to be noted; in the proximity of ova containing miracidia which stain well the infiltrating cellular type is that of the eosinophil polymorphonuclear leucocyte. In the neighbourhood of ova showing degeneration of the miracidia, evidenced by the absence of nuclear staining, the predominant cell is that of the mononuclear type. In some of the sections ova are present in very large numbers; in one particular area as many as sixty were visible in the field given by an objective Leitz No. 3 with ocular No. 2.

Apart from the fact that numerous terminal-spined ova were found in the stool it was considered necessary to search sections in the endeavour to find an embedded ovum cut longitudinally through the middle line showing beyond any doubt the presence of the terminal spine. In due course a fine specimen was found (Fig. 3). The complete contained miracidium is unfortunately not shown, but the specimen demonstrates the terminal spine very clearly. No evidence whatever has been obtained after prolonged search of any ova showing the slightest suggestion of a lateral spine.

Certain structures were seen lying within the blood vessels which lead us to think that they were the transverse sections of the terminal portion of a trematode worm. Further search in other sections from the same tissue finally led to the discovery of typical transverse sections of the helminths themselves lying within the blood vessels and presenting the characteristic arrangement of the male and female worms. A portion taken from one of these sections is illustrated in Fig. 4.

From the histo-pathological examination the polypoid growth would appear to be of the nature of a papillo-adenoma, the stimulus producing this hypertrophic condition of the rectal mucosa being the presence in the tissues of numerous ova of *S. haematobium*, and also possibly certain toxic substances secreted by the adult worms themselves whilst lying in the terminal ramifications of the haemorrhoidal vessels.

FIG. 4.—Transverse section showing the helminths lying within the blood vessels; numerous ova can be seen in the surrounding tissue. Fixed in formol saline and stained with Ehrlich's acid haematoxylin and eosin. (× 44.)

CONCLUSION.

The case under consideration would appear to prove the ability of *S. haematobium* to produce rectal papillomata.

The fact that after very careful search no trematode ova other than those of *S. haematobium* have been found in the urine, faeces, and tissues is, we think, fairly conclusive evidence of a further and previously unproved manifestation of infection with *S. haematobium*.

The accompanying illustrations were kindly drawn from the actual specimens by Mrs. Sinderson, and depict the main points of pathological interest mentioned in the text.

A TWO-LOOP BUTTON SUTURE.

BY

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BEFORE I adopted the suture to be described I had had to experience the unforeseen bursting open of abdominal wounds. This happened after both suturing in stages and the insertion of deep through-and-through sutures. After gastro-jejunostomy or a similar aseptic operation, in weakly patients, somewhere about the tenth day the abdominal incision opened and bowel prolapsed. A cough, vomit, strain at stool, tympanites, merely sitting up in bed, were the immediate causes of the accident, but it could then be noted that there had been an absence of repair. In septic cases, entailing the insertion of a drainage tube, and an undermining of the abdominal wall by suppuration, the

sutures simply cut out; this was followed by the death of the patient.

The suture has prevented such accidents, and there appears to be less tendency to late ventral hernia. I had tried various methods to be found in books before lighting on this one, of which I have not been able to find a similar description. By it the layers of the abdominal wall can be brought into apposition, each to each, and so held during healing, without tension or necrosis, or on the other hand of yielding. The patient can get up, and the sutures need not be taken out for five weeks. In the case of suppuration fomentations can be put on whilst the sutures continue to hold. The method has been applied also secondarily, after an abdominal incision otherwise sutured has burst open, and sound healing has followed. My description applies in particular to the closure of a median abdominal incision, but with modifications I have used the procedure for the closing of other incisions, including cases of ventral hernia and sliding scrotal hernia. The sutures can be inserted even although the abdominal wall is only partly relaxed by the anaesthetic.

Diagram 1.

Diagram 2.

The Method.

The soft parts under the skin are held a little everted by Lane's tissue forceps, the skin being retracted as required by a blunt hook. A strand of strong fishing gut has one end threaded through the eye of a semi-circular needle and held by a slip-knot; upon the other end clamp forceps are put on to serve as a stop. The needle is entered (Diagram 1, A) one-third of an inch (1 cm.) from the right margin, through the skin and out through the subcutaneous tissue, the suture being drawn through up to the stop. The needle being then carried across to the left side is made to penetrate the anterior sheath, the left rectus muscle, its posterior sheath, and the parietal peritoneum, not more than two-thirds of an inch (2 cm.) from the cut edge. The needle is next passed (Diagram 1, B) on the right side through the parietal peritoneum, outwards through the right rectus and its anterior sheath. A second loop is now inserted about half an inch (1.5 cm.) distant lengthwise from the first loop, the object being to include about one inch of the incision by each suture. The needle is passed (Diagram 1, C) on the left side from the anterior sheath to the parietal peritoneum. Finally the needle is pushed from the parietal peritoneum on the right side outwards (Diagram 1, C, D) to emerge through the skin about a third of an inch (1 cm.) horizontally outside the point of entry.

The two ends of the suture are drawn upon until, as tested by the thumb and finger, the margins are brought into apposition without constriction or puckering (Diagram 2, E). Then (Diagram 2, F, G, H) the suture ends are knotted over "buttons"; I have used short lengths of well boiled catapult elastic, but rolls of gauze and other things will serve. The skin is thus approximated, and is further held together by a fine continuous suture which can be removed after a few days. At the time or at subsequent dressing a single layer of gauze may be slipped under the "buttons" to protect the skin. The sutures should not be taken out until about three (better five) weeks, the patient meanwhile getting about. When doing so the knot is drawn upon sideways, and one end snipped through flush with the skin, into which it withdraws. Later on—whether the same, the next, or the third day—after loosening by the patient's breathing and movement, the suture can be readily withdrawn without liability of breaking or of leaving buried a portion of the fishing gut.

HERPES ZOSTER WITH LOCALIZED MUSCULAR PARALYSIS.

BY

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MUSCULAR paralyses in the affected zone accompanying or following an attack of herpes zoster are very rare; especially is this the case in herpes of the trunk. As the essential lesion in herpes zoster is situated in the posterior root ganglion of the spinal nerve supplying the affected area (Von Bärensprung, 1861[1]) and consists in an inflammation of the ganglion sheath with round-celled infiltration and extravasation of blood into the ganglion itself (Head and Campbell, 1900[2]), it is somewhat surprising—when one considers that it is at the posterior root ganglion that the tubular meningeal sheaths of the anterior and posterior roots blend—that the inflammatory process does not spread more frequently to the neighbouring anterior root and result in localized paralysis. That paralysis of muscles in the affected zone is more often met with in herpes of the upper limb than in herpes of the trunk is probably accounted for by the fact that the anterior and posterior roots in the lower cervical region have an even closer relation to each other than have those in the thoracic region. In this connexion, however, it is to be noted that D. W. Montgomery[3] advances a different explanation. He believes that herpes zoster is caused by a specific virus—probably streptococcal, as was originally suggested by Rosenow and Oftdale—which reaches the posterior root ganglion from the skin by way of the perineural lymphatics. The fact that the lymphatics of the sensory nerves are more accessible from the surface than are those of the motor nerves accounts for the rarity of an associated paralysis; in the case of the limb and ocular muscles, however, the motor nerves are more superficial, a distribution which is considered by Montgomery to explain the relatively more frequent occurrence of motor complications in these situations. In herpes ophthalmicus, ocular palsies as a complication are said to occur in 7 per cent. of cases.

In an extensive search of available literature I have been able to find very few recorded cases of paralysis accompanying or following herpes zoster of the trunk. Gowers[4] mentions the occurrence of motor complications in herpes zoster, and points out that it is necessary to distinguish between immobility from hyperaesthesia and true paralysis. Ebstein[5] in 1895 collected 20 cases of paralysis complicating herpes zoster, but this series includes no case of herpes of the trunk in which the paralysis followed and was confined to the muscles of the affected zone. The 20 cases consist of 6 of paralysis of certain muscles of the upper limb, 1 of the lower limb, 9 of facial paralysis, 3 of facial paralysis together with other cranial nerve palsies, and 1 of ascending myelitis following herpes of the trunk. Hewlett[6] in 1906 pointed out that although 76 per cent. of cases of herpes zoster affected the trunk, he had found only one case in which muscular paralysis occurred. F. Taylor[7] (1895) recorded a case of herpes on the right side affecting the region of the tenth, eleventh, and twelfth ribs posteriorly and extending to the umbilical region anteriorly, which was followed, about four weeks after the appearance of the eruption, by paralysis of

the abdominal muscles on the same side. Söderbergh[8] (1919) described a case of herpes involving the fifth and sixth thoracic segments with slight paralysis of the external oblique on the same side. Several cases of ocular palsies following herpes ophthalmicus and of facial paralysis complicating facial herpes have also been recorded.

In the following case a typical attack of herpes zoster affecting the area of the twelfth thoracic nerve was followed twelve days after the appearance of the herpetic eruption by paralysis of the muscles in the lower part of the abdominal wall of the same side.

A man, aged 61, in December, 1921, while in Australia, had an attack of pain originating in the precordium and radiating down the inner side of the left arm. About a week later he suddenly developed right-sided hemiplegia and aphasia. Both the paresis and loss of speech, however, rapidly improved, and by the time he left Australia in February, 1922, his speech was practically normal and he complained of no weakness in either the arm or leg.

When first seen (May 19th) the only signs indicating that the patient had had hemiparesis was that the right ankle-jerk was considerably brisker than the left, and the right plantar reflex was less definitely flexor than the left. The cranial nerves, arm and knee jerks, and abdominal reflexes were all normal. He had a certain degree of chronic middle-ear deafness, bone conduction being greater than air conduction, and the tympanic membranes opaque and somewhat indrawn.

The cardiac apex beat was not felt; the area of cardiac dullness extended half an inch external to the nipple line; the first sound was normal, the second accentuated in the aortic area. Pulse 80, regular, right equal in volume to the left; palpable arteries not unduly thickened; blood pressure, systolic 130 mm. and diastolic 80 mm. Hg. *X*-ray examination showed a slight uniform dilatation of the aortic arch. The patient complained of no particular symptoms.

When seen again (August 5th) he had a typical left-sided herpetic eruption extending from the spine in the lumbar region across the crest of the ilium to the upper gluteal region and round to the groin, just reaching the anterior aspect of the thigh—the area corresponding to the total distribution of the twelfth thoracic nerve. The history was that eight days earlier (July 28th) the boat on which he was leaving England to return to Australia collided with another in mid-channel during the night. He received no injury, but being awakened put his overcoat over his night attire and went on deck to ascertain what had happened. The collision necessitated his return to England. Two days later he began to experience severe pain of a neuralgic character in the left loin which radiated towards the groin; the eruption appeared on the fourth day of pain. The patient was not taking arsenic.

Ten days later (August 15th) he stated that a "rupture" had developed in the affected region, and that for the last few days the side had felt somewhat numb. There was a marked "bulge" in the lateral abdominal wall, immediately above the iliac crest. The local musculature was flaccid and failed to contract either on voluntary effort or on coughing; either act resulted in the umbilicus being drawn over towards the right side. To faradism there was no response in the affected muscles. The patient now complained of pain radiating from the loin to the hypogastrium, but said that the region of the hip and groin felt numb. On testing a narrow area of cutaneous hyperaesthesia was found just above and almost parellel with the groin, while below this area and extending backwards to within two inches of the spine was a zone—corresponding with the now fading eruption—of anaesthesia to light touch (cotton-wool) and pin-prick, the area of loss to pain being slightly larger and enclosing that of loss to light touch (anaesthesia of root type over a portion of the cutaneous area supplied by the twelfth thoracic nerve).

Other physical signs—nervous and circulatory systems—showed no change from those previously described, with the exception that the systolic blood pressure was now 120 mm. The Wassermann reaction (blood-serum) was negative.

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THE International Congress of Medical Hydrology and Climatology will be held at Brussels from October 20th to 22nd.

ACCORDING to the official report recently published, during the first six months of 1922 29,264 cases of cholera occurred in the three Soviet republics of Russian Europe, 4,963 in Caucasia, 1,864 in Asiatic Russia, 2,139 on the railways, 45 on the rivers and canals, and 840 in the Red army.

THE triennial prize of 1,800 francs instituted by Mme d'Ault du Mesnil in honour of her husband for the best unpublished work on prehistoric anthropology will be awarded for the first time in 1924. Candidates are required to send three typewritten copies of their manuscript to the Secretary, École d'Anthropologie, 15, Rue de l'École de Médecine, Paris, before December 31st, 1923.

Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

HAY FEVER TREATED BY SINUSOIDAL CURRENT TO THE SPINE.

THE following record, which applies to a case treated last summer, may be of interest at a time when this distressing malady is prone to attack its victims.

On June 2nd, 1922, a man aged 33 came to me in a typical attack of hay fever. In previous summers he had tried all the usual remedies, and had been examined and treated by competent nose and throat specialists, but in spite of treatment the trouble was wont to run its course without abatement. He knew exactly the week in which the complaint would commence every year, and it was severe enough to keep him from business while it lasted.

An indifferent pad 4 by 6 inches was applied over the sacrum, and an active electrode, 1 inch in diameter, held over the seventh cervical spine. The sinusoidal current was gradually turned on until he took as much as he could stand without discomfort. Within three minutes there was an improvement. He commenced to take deep inspirations, the general distress lessened, the tickling in the throat and the inflammation and irritation in the eyes subsided. In an incredibly short time, certainly not more than five minutes, he pronounced himself quite normal. The current was turned off, then reapplied twice at intervals of five minutes.

There was no unpleasantness from the current, but he noticed a peculiar metallic taste in the mouth. At subsequent sittings he stated that the relief seemed to come as soon as he felt this metallic taste. We discovered later that the metallic taste could be produced by applying the active electrode to various areas in the cervical region, but the relief only came when the pad was held over the seventh cervical spine.

On the day following his first treatment he motor-cycled to business and back without goggles, and felt perfectly well till on his way home, when the symptoms returned, but in a mild degree. Similar treatment was employed, with the same beneficial result. He remained free from trouble till June 9th, and was treated on June 10th. Subsequently he received treatment on June 13th, 14th, 17th, 26th, 29th, and again on July 10th—altogether nine treatments. During this time the discomfort was much less, he slept well and went to business daily.

The result is probably produced by some action on the sympathetic system. Whether one may hope to produce a permanent cure is problematical, but the method seems worthy of extended trial.

THOMAS MARLIN, M.D.,
Medical Officer in charge Electro-therapeutic Department, University College Hospital.

TWO CASES OF ACUTE INTUSSUSCEPTION IN CHILDREN: RESECTION: RECOVERY.

ON March 7th, 1923, at the Royal Liverpool Children's Hospital I operated on a boy, aged 2 years, who had suffered from periodic attacks of pain in the umbilical region and vomiting which had become persistent. The symptoms had lasted for seventy-two hours. He showed signs of abdominal distension, had visible peristalsis, and a tumour palpable in the subumbilical region. At the operation I found an ileo-ileal intussusception which was irreducible and gangrenous. I resected 18 inches of ileum and performed a lateral ileo-ileal anastomosis. He made a complete recovery.

On March 22nd, at the same hospital, I operated on a boy, aged 10 years, who for thirty-six hours previously had suffered from periodic attacks of severe abdominal colic accompanied by vomiting which had become persistent. In this case there was a large visible tumour extending from below the umbilicus to the right iliac fossa. This intussusception was also quite irreducible and gangrenous. On attempts being made to effect a reduction, the outer coat commenced to split in several places. I removed the whole mass (which consisted of 3½ feet of ileum), infolded the ends, and as the distal infolded end was close up to the ileo-caecal valve I performed lateral ileo-colic anastomosis. This boy has also made a complete recovery.

In a paper I read before the Liverpool Medical Institution in November, 1922, I stated that 66 per cent. of such cases began as ileo-ileal intussusception. These are examples of cases that remain ileo-ileal. An interesting feature of these two cases is that neither patient passed any blood per rectum.

The importance of the periodicity of the colic in intussusception cannot be exaggerated. It is invariably present in the early stages of the attack.

Liverpool. W. A. THOMPSON, M.Ch., F.R.C.S.Ed.

Reports of Societies.

THE MORTALITY OF COAL AND METALLIFEROUS MINERS.

AT a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on May 25th, the President of the Section, Dr. R. J. REECE, in the chair, Professor E. L. COLLIS read a paper entitled "An inquiry into the mortality of coal and metalliferous miners in England and Wales."

Professor Collis remarked that the mining community consisted for the most part of a compact body of men who did not change their occupation, were employed underground in dimly illuminated and artificially ventilated workings, had to put forth considerable muscular energy, and were exposed to the dust of the materials worked. Notwithstanding a general similarity of working conditions, the rates of mortality of different groups of miners differed widely. In coal mining, pneumonia, bronchitis, and accidents were responsible for rates of mortality considerably above the standard of all occupied males; diseases attributed to alcoholism and phthisis were, on the other hand, less deadly amongst coal miners than in the standard population. When the separate coal fields were considered it appeared that the rate of mortality in the Lancashire field much exceeded that in any other, and was nearly double the rate of Nottinghamshire coal miners. The conclusion seemed forced that although local conditions must be held to contribute something to the differences, inquiry within the industry was needed to ascertain why they were so accentuated, particularly, perhaps, in the instance of phthisis. The age distribution of phthisis amongst coal miners brought it into line with the type affecting workers exposed to silica dust, but the unusually low absolute prevalence of the disease needed explanation. Possibly Mavrogordato's work provided the clue; he exposed one group of guinea-pigs to silica dust alone, a second to silica dust *followed* by coal, and a third to silica dust *preceded* by coal. His results indicated that "once silica is fixed in the lung tissues, coal exerts no eliminative effect. If anything the influence is in an opposite direction, but that a prior or even simultaneous exposure to coal dust appears to set up a condition in the lung which is inimical to the fixation of silica." With regard to mortality attributable to alcoholism, the order of the fields did not correspond to their order in respect of other causes of death. The miner was a "convivial" rather than an "industrial" drinker, usually taking no alcohol until the day's work was over. There appeared to be a relation between the depth of working and the mortality from alcohol. Bearing in mind the strenuous nature of the task and the heat of the workings, it might be that the provision of drinking water underground would appreciably lessen convivial drinking amongst coal miners. Cancer was not an exceptionally important cause of mortality amongst coal miners; cancer of the stomach and liver was the only form which showed a rate appreciably above that of the standard. Passing to the three forms of metalliferous mining, tin, lead, and ironstone mining, it was remarked that the two former stood out because not only was the general rate of mortality in each excessive, but in each the same groups of disease were prominent—phthisis, respiratory diseases, and Bright's disease. Veins of tin ore, which in this country occurred exclusively in Cornwall, not only contained quartz but lay in a rock largely made up of quartz, so that much dust was generated in the workings. The high rate and age distribution of phthisis was in accord with what was recognized to occur amongst men exposed to the dust of silica. Recent work by Gye, Purdy, and Kettle on the toxicity of colloidal silica lent interest to the somewhat high rates for Bright's disease. The conclusion suggested was that silica dust was gradually converted into soluble silica in the lungs and caused the well known fibrotic changes, but some escaped into the blood to be excreted by the kidneys, which were consequently similarly affected. The phthisis mortality was excessive at Greenside, where the veins of lead ore occurred in granite, but not at Keswick, where the ore was in a limestone rock. Phthisis among haematite miners appeared statistically to resemble in a modified way fibroid phthisis and might be due to oxide of iron. Other workers, such as boiler makers, exposed to iron oxide exhibited a similar statistical type. This distribution was not found in iron carbonate miners. Alumina dust, judging from the mortality data for slate quarriers, resembled iron oxide and silica in its effect on the lungs. A point mentioned in connexion with the possible influence of coal dust in lowering the incidence of phthisis upon coal miners received some support from the facts of the ganister industry. Ganister is a quartzite rock found underlying coal and overlying fire clay. Best ganister, which contains over 95 per cent. of quartzite, was made into first grade refractory bricks and other material used for lining steel furnaces. The dust to which the workers were exposed was nearly pure silica, and their mortality from phthisis excessive. Impure ganister which contained veins of fire clay was made into second grade refractory materials used for coke ovens. The dust contained about 80 per cent. of pure silica, but the workers had no excessive mortality from phthisis. The theory had been put forward that the influence of coal was due to some organic substance and that this substance might be washed down from the coal into the underlying fire clay, where it was retained, this accounting for the protective action of the fire clay; it might be that the substance was of a nature to prevent silica becoming colloidal. An interesting point in connexion with tuberculous silicosis, first noted amongst metalliferous miners, was its low power of infecting contacts not themselves exposed to silica dust, such as the wives and children of the miners.

The paper was discussed by the PRESIDENT, who remarked that one factor of the low mortality from phthisis of coal miners might be their comparatively high standard of diet. Dr. R. J. Ewart—whose untimely death they all deplored—had called attention to the correspondence between the rising curve of food consumption and the decline of phthisis. It would be of interest to learn whether the Lancashire field, where, from the tables shown, it seemed that the phthisis rate had varied little of recent years, differed in the matter of food consumption from the other fields. Sir KENNETH GOADBY spoke of the high sickness rate experienced by miners. Dr. BROWNLEE fully concurred with the reader of the paper in emphasizing the chemical as opposed to the crudely physical theory of the mode of action of silica. Dr. GREENWOOD wished to associate himself with the President in calling attention to the loss epidemiological science had sustained by the death of Dr. Ewart, a most brilliant and original-minded investigator. Dr. MCKAIL referred to the difficulty of interpreting accidents statistics, and Dr. MCVAIL urged the importance of making fuller use of the morbidity data in process of collection under the National Health Insurance rules.

Professor COLLIS, in his reply, paid a tribute to the work of Dr. Ewart, the news of whose death had saddened a pleasant evening.

PSYCHIATRY IN CANADA.

The Maudsley Lecture.

THE quarterly meeting of the Medico-Psychological Association of Great Britain and Ireland was held at the rooms of the Medical Society of London on May 24th, under the presidency of Professor GEORGE M. ROBERTSON of Edinburgh. After transacting Association business—during which it was announced that the new President will be Dr. Nolan of Downpatrick Asylum—an adjournment was made to the Barnes Hall of the Royal Society of Medicine, to hear the Maudsley Lecture by Dr. C. K. Clarke, Professor of Psychiatry in the University of Toronto.

Dr. CLARKE said that in a developing country, where population was sparse and territories enormous, the cost of building and maintaining institutions for the care of the mentally ill was a heavy burden, and it was a wonder that anything of the kind was done. And among immigrants from the Old World there was an undue proportion of defectives and mentally diseased who looked to the Terra Nova for a solution of their troubles. There was no reason why a

young country should burden itself with the weaklings of other nations, and he agreed with a close scrutiny of immigrants. The activities of the National Committee for Mental Hygiene enabled the mental state of the country to be accurately assessed. The population of Canada had not progressed rapidly, because it had been bled white by the emigration of their best south, and those who had been induced to take their place had not always even come up to the average. However, the migration north into Canada of the men of the Nordic type was doing much to redress this. Especially did child immigration need watching, as it contained an undue proportion of mental weaklings. Of 5,800 children referred for examination to the national mental hygiene psychiatrists — they were special cases—1,386 were mentally subnormal to such a degree that they could not acquire the ordinary school education. Only 25 per cent. of these were Canadian, 33 per cent. foreign-born, the remainder being children of recently arrived immigrants. Nearly all the girls were persistently immoral, and the mothers mostly unmarried; a great burden on a young country. In his country the relations between general medicine and psychiatry had been anything but intimate, and superintendents of Canadian asylums had too often been politicians who received their reward not because of their psychiatric knowledge, but on account of their influence with the Government in power. And medical education ignored psychiatry to a great extent, providing but little instruction in it to the student. He spoke highly of the good effects of occupation for patients with mental conditions. In Toronto there was established a psychiatric outdoor clinic at the General Hospital, and in a short time most of the agencies in that city were working for it. Psychology there could now be said to be coming into its own. Psychiatry had a good many sins to answer for, and it could not be said to have kept pace with the progress in medicine. In Canada there were outbursts of enthusiasm in certain circles over psycho-analysis, Freudian theories and sex problems, but it was when the war broke out that the neo-psychiatrists, the neuro-psychiatrists, the psycho-neurologists, and psychological healers of all kinds found themselves, shell-shock being their particular fad. Many of the mentally diseased could become useful hewers of wood and drawers of water, and by a careful study of industrial misfits more could be done than had been thought possible. The staffs of asylums, as a rule, were so small that research and study could not be carried on in the best way possible. The work of national mental hygiene in a large clinic had shown that the road to complete success was in the early prevention of mental disease. He congratulated his colleagues in this country on the establishment of a mental hygiene association in Great Britain; psychiatry had never before had such an opportunity to prove its worth, to show the people how to lead better and saner lives. Psychiatrists must no longer be mere custodians of people overtaken with dire calamity, but aggressive leaders who were ready to show their mettle in a great cause. In Canada more good had been done by the mental hygiene movement in five years in improving the care of the insane, the study of defectives, and educating the public to the importance of these problems than in the preceding six decades. The victims of psychosis could nearly always be detected at an early age, and it was most important to learn how to steer the subjects of it clear of the tragedy ordinarily awaiting them. Eugenics as taught by some ultra-modern teachers would prove not only difficult, but impossible. The psychiatry of the past had proved sadly disappointing, and he asked whether the ratio of actual recoveries had increased in the last fifteen years. And the relations between law and medicine in psychiatric matters in Canada were most unsatisfactory, hence the well advised psychiatrist hesitated before appearing in court to give evidence in criminal cases, chiefly because the law had not yet recognized that mental disease was, ordinarily, a distinct entity; and in murder trials the M'Naghten decision "still works overtime." It was necessary for psychiatrists of the new school to force the issue, and already the thin end of the wedge had been inserted. Here the mental hygiene movement stepped in and taught the community what was their duty in such matters. If Maudsley's *Responsibility in Mental Disease* could be made a legal textbook, a much saner policy would be developed in dealing with mental disease and defect; the law must be advised to meet the psychiatrist more than half-way.

Speaking of the future, Dr. Clarke maintained that the time had come to revise the methods of teaching psychiatrists. The University of Toronto had developed an optional course of five years in psychology and psychiatry. The young graduate had been ill equipped in these subjects, and the specialty had very few prizes to offer, hence it was not regarded as attractive. Asylums had too long been closed corporations, and a great awakening factor was the war. For the young psychiatrist, the best early training in the specialty was to be obtained in outdoor clinics and psychopathic hospitals, rather than in institutions, for in the latter the herding of "chronics" often interfered with the research and study of the individual. A course of options for the University of Toronto had been outlines, providing for sixty hours a year in special training extending over five years; the fifth and sixth years of the course being largely clinical. Men taking this course would not fall easy victims to the many fads extant, and the adoption of the caravan system of educating the public would prove invaluable. They also intended to follow the lead of this country in the matter of post-graduate courses. And the realm of research must be invaded as never before; there must be co-operation between School Boards and Public Health Departments; in Toronto that was already the case. With their experience in intelligence tests, he claimed they were in a position to estimate their value, as well as appreciate their inadequacy; but their apparent simplicity had stimulated the ambition of many amateurs, whose activities were very likely to be harmful. Group tests had proved to be of little value. At the present time in psychological and pedagogical circles there was a warm discussion on the supernormal child, a term which was unfortunate and unscientific. Some of the very brilliant children were found to be on the verge of a mental and physical collapse. The psychiatrist of to-morrow must be educated along different lines from those hitherto followed; even the institutional physician must be trained to grapple with the problems presented by social misfits; he must be in a position to advise regarding the mental hygiene of the community. Voluntary clinics had robbed the institutions of much of the stigma formerly associated with them, and the admissions to them were on the increase. The importance of prevention must never be forgotten. To do all that was here pointed out as desirable, it was obvious that psychiatrists must be emancipated from much of the administrative work which was now their portion.

In conclusion Dr. Clarke declared that psychiatry must show the public its just reasons for existence, its readiness to adjust itself to the new order of things, and to do something more than care for those who fell by the wayside.

Dr. SOUTAR, in proposing a vote of thanks to the lecturer for his address, said it was recognized that it contained a message of the highest importance and value, and was not only helpful, but hopeful. While Dr. Clarke's enthusiasm had driven him, it had never stampeded him. Notwithstanding the distance of Canada from us, the same problems confronted both countries, and in the dominion they were faced under more favourable conditions, for while tradition might be an excellent thing in itself, it was apt to exert a "strangle hold" on progress, and the Canadians were freer than we were from preconceptions, behind which we were apt to find ourselves entrenched. The lecturer rightly took the view that psychiatry was not a subject concerning only a small section of the community; its importance was so great that there was need for those who had been trained in it to go out amongst the public and instruct them in matters which would tend to the maintenance of their sanity; that the function of the psychiatrist to-day was not only that of mind mender, but that of mind tender.

Dr. HELEN BOYLE (Brighton) seconded the proposition and spoke of the kindly hospitality she received when visiting Canada. Dr. Clarke was a member of the International Committee of Mental Hygiene, of which branches were now established not only in this country, but also in France, Belgium, and China.

The vote, having been supported in a few words by the PRESIDENT, was carried by acclamation.

Reviews.

SIR RONALD ROSS'S MEMOIRS.

THE volume entitled *Memoirs, with a Full Account of the Great Malaria Problem and its Solution*,[1] by Sir RONALD ROSS, is in substance an autobiography. It has recently become popular to write an autobiography instead of waiting for someone else to write a biography. Which is the better method of the two is open to doubt. Some men—though this is rare—have even forbidden the publication of any detailed account of their life and work altogether. Sir James Dewar was a notable example; in his will he expressly stated that no biography of him should be published as a separate book. Sir Ronald Ross's memoirs are voluminous; with its index the book contains over 550 pages. It is divided, like all Gaul, into three parts: Part I, India; Part II, Malaria; Part III, The Fight for Life. Appendices deal with honours and awards, and honorary membership of societies, and there is a final section giving references to writings on malaria and mosquitos, to mathematical papers by the author, to literary works by the author, and a variety of other subjects. The first part is interesting in one respect—namely, that it shows what the author's bent was; before he took seriously to medicine and science he seems to have spent most of his time studying mathematics, writing poetry, dramas in verse, and romances. Little is said about medical work as such. The second part, to which readers will turn with special interest, describes the four years of the author's life which were almost entirely devoted to investigations on malaria; it is written clearly and with much dramatic force.

It may truly be stated that the story related in these pages is fascinating, and that it will be of great value to future historians of science. We find first the young man who had dabbled with malaria in India, who had even looked for the new Laveran parasites, but had failed to find or recognize them, who comes to London on leave, sees Professor Kanthack, then pathologist at St. Bartholomew's Hospital, and is sent by him to Dr. Patrick Manson. Here the romance begins. Within a few minutes Manson has shown the inquirer Laveran's "crescents," and a few days later the other forms of the organisms, in a patient in Charing Cross Hospital. All doubts at once fled, and one day soon afterwards, when walking along Oxford Street, Manson made the pregnant remark, "Do you know, I have formed the theory that mosquitos carry malaria just as they carry filariae." The author of the memoirs replied that he had seen the same conjecture in one of Laveran's books. Impressed, however, with Manson's arguments, he determined to test the hypothesis thoroughly on his return to India. From that time the research began, the two men corresponding with each other constantly, thus helping each other with mutual suggestions and advice. From April, 1895, to February, 1899, Ross wrote 110 letters to Manson, containing almost a thousand words each. Manson could not spare the time to reply so voluminously, but nevertheless sent out much useful advice and fought for his disciple in many other ways at home. Many of these letters are given in full, and form the cream of the narrative. In them Ross is constantly giving credit to his preceptor in generous terms. "What a beautiful discovery is this! I can venture to praise it because it belongs to you, not to me" (p. 276). Again, at the end of his report on the cultivation of proteosoma (p. 288): "These observations prove the mosquito theory of malaria as expounded by Dr. Patrick Manson; and in conclusion I should add that I have constantly received the benefit of his advice during the inquiry. His brilliant induction so accurately indicated the true line of research that it has been my part merely to follow its direction." Yet again, "I was and am a hero-worshipper and he [Manson] and Laveran were my heroes. He [Manson] almost alone had helped me in the long fight, and I swore to give him all the credit I may have acquired in return. So! Let the cup of gratitude spill over rather than be stinted." It is pleasant to record these passages, but it is equally pleasant to be able to say that it was the untiring energy, keenness, indomitable perseverance, and courage under adversity of Ross that carried the research to its final successful conclusion. Many times the want of sympathy and help from his own service would have damped the enthusiasm of even the most virile, but he kept on and did not give way. What fate could have been more cruel than, on the eve of success, to be banished to Kherwara? Yet here again his friend in London was with him, and by judicious representations at home had the sentence quashed. Then comes the final scene, the Calcutta work and fame. Yes! no doubt it is a fine story, an epic of scientific research.

Part III is entitled "The Fight for Life"; it is dull compared with the chapters just described. A tendency to polemics creeps in. The attempts of the Italians to pirate his work were deplorable, but unfortunately such attempts are not unknown in science even in Britain. It is difficult to know how to deal with such people—perhaps better to ignore them altogether than enter into direct argument with them. After all, posterity will judge, and Sir Ronald Ross may rest assured that his own countrymen know well what he has done, and in future generations his name and Manson's will hold the highest niche in scientific research and momentous discovery. Even for the present Sir Ronald has not fared so badly, as is shown by the list of honours and awards (p. 525). Though he has not amassed a fortune he has won fame and honour—and, after all, what is higher than honour, even though adorned with its laurel wreath alone?

[1] *Memoirs, with a Full Account of the Great Malaria Problem and its Solution.* By Colonel Sir Ronald Ross, K.C.B., F.R.S. London: J. Murray. 1923. (Med. 8vo, pp. x+547; 11 plates. 24s. net.)

DIAGNOSIS AND CONTROL OF TREATMENT IN DIABETES.

PROFESSOR HUGH MACLEAN, in his monograph entitled *Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes*,[2] aims at giving to the busy general practitioner a short and concise account of the present state of our knowledge of diabetes and glycosuria, with special reference to their clinical aspects.

The most important consideration which the author dwells upon is the necessity for studying the variations in blood-sugar concentration in normal and in diabetic individuals. This undoubtedly is an aspect of diabetes which offers the greatest obstacle to the home treatment of the disease. Whether the average general practitioner has the time to carry out his own blood-sugar analyses is a question that we should not care to answer offhand, but the method Dr. Maclean describes for performing the estimation with 0.2 c.cm. of blood obtained by skin puncture simplifies the technique greatly. Accuracy is, of course, demanded, but with practice there is no reason why reliable analyses should not be obtained by anyone capable of very ordinary chemistry. It is obvious that the modern treatment of diabetes cannot be controlled by estimations of the urine sugar alone; indeed, it is almost the case nowadays that all quantitative analyses must be carried out on the blood sugar, the amount of sugar in the urine being of secondary importance.

Dr. Maclean follows Marcel Labbé in insisting that diabetes is not only a carbohydrate derangement. Defects in fat and protein metabolism may play an equally large part in the malady. He rightly emphasizes the effect of fat in the diet in producing ketonuria, and says that it is easy enough to get rid of glycosuria by giving large amounts of fat with protein instead of carbohydrate, but the resulting acidosis may be much worse than the glycosuria.

His observations on the time when maximum blood-sugar concentration occurs after ingestion of sugar reveal a remarkable difference between the normal individual and the diabetic. In the normal the maximum is reached in from thirty to sixty minutes after the ingestion of glucose; in the diabetic the rise is slower and the fall is slower, so that the maximum may not be reached before

[2] *Modern Methods in the Diagnosis and Treatment of Glycosuria and Diabetes.* By Hugh Maclean, M.D., D.Sc., M.R.C.P. London: Constable and Co., Ltd. 1922. (Demy 8vo, pp. xi + 159; 8 figures. 12s. net.)

two and a half hours, and the fall may scarcely have begun after four and a half hours.

Sugar tolerance tests described by Professor Maclean will be found to provide a rapid means of estimating the character and gravity of a given case of glycosuria, a necessary preliminary to embarking on treatment. These tests are also essential to a correct prognosis. It is interesting to find that a positive Gerhardt's reaction with ferric chloride is of more importance than the nitro-prusside reaction of Rothera as indicative of a serious condition. Professor Maclean suggests that the minimum number of tests necessary for the treatment of grave cases of diabetes might be thus given:

1. Fehling's test for glucose.
2. Diacetic test with ferric chloride.
3. Estimation of ammonia in urine by formalin method.
4. Fridericia's estimation of CO_2 in alveolar air.
5. Sellard's sodium bicarbonate test.

The chapters on dietetic treatment are clear and concise; the tables of diets and of food values will be found most helpful. On one point the author fails perhaps to be quite definite enough in his instructions. He gives precise figures for the minimal requirements of protein and total calories, but he does not offer a ready method of reckoning the proportion which fat should bear to the carbohydrate and the protein in the diet. Woodyatt's plan of allowing the amount of fat to be equivalent (in grams) to twice the carbohydrate and half the protein would have been worth mentioning.

Brief reference is made to insulin, but this remedy was not obtainable at the time the book was published. Dr. Maclean's suggestions will be found to lose little or none of their value even when the supply of insulin is freely available. In fact, any practitioner who wishes to make trial of insulin will do well to use Maclean's book as his principal guide.

SURGICAL GRAFTS.

THE possibilities of surgical grafts in man arouse both both speculative and scientific interest. Professor MAUCLAIRE in a volume entitled *Les Greffes Chirurgicales*[3] has attempted to deal with the subject in an encyclopaedic manner. He has not failed to note every type of graft that has ever been essayed in the human body or in animals. It must, however, be confessed that the book as a whole gives rather the impression of a catalogue of monographs than of a critical survey of a complex and interesting subject. The detail of different techniques which have been employed in the carrying out of various implantation operations is only sketched, and little or no attempt is made to appraise the value of different methods. There is no definition of the histological or other evidence which should be required before classifying a graft as a success; this lack is particularly noticeable in relation to the implantations of various glandular organs.

The section on bone grafts is limited to a few pages. In view of the established value of implants of this character and the extensive study of the subject which has been forced upon us by the great war, very scant justice is meted out to it. Various forms of nerve grafts receive full notice, perhaps more than the doubtful success of such procedures warrants.

An extensive bibliography of the subject, covering some fifty pages, is included in the volume and forms a very useful part of the work.

APPLIED ANATOMY OF THE ABDOMEN.

DR. RAYMOND GRÉGOIRE has written an attractive book on the medico-surgical anatomy of the abdomen. He divides the abdomen into two arbitrary portions, a thoraco-abdominal region, and a subthoracic region, the dividing line running horizontally at the lowest level of the tenth rib. He admits the heterodoxy of his divisions, but says with some truth that the more usual partitioning into hypochondriac parts, iliac parts, and so forth, is inconvenient clinically. He includes the pelvis in his subthoracic region, in so far as the coils of small intestine and colon are concerned with it, but unfortunately has not described the rectum. Much could be said against Dr. Grégoire's empirical divisions, but there are none the less arguments in their favour, and if the author has given us a good book otherwise we need not question him too closely on these points.

The volume we have received for review is the second,[4] containing an account of the abdominal wall, small and large intestines, and omentum. The excellence of the book lies in the accuracy of its anatomical facts, and in this respect it is well up to the high standard of descriptive anatomy in France. Considerable care is taken with the account of the linea alba, and more than ten pages are devoted to the umbilicus alone, its development, and the reason for the various malformations and hernia which appear there. This section is well thought out. The position of the loops of small intestine is described, and reference made to Mall's experiments on the return of the intestinal coils to their normal positions after they have been disturbed at operation. Amongst the most satisfactory features of M. Grégoire's book is the description of the large intestine. He describes the ascending colon as fixed in the vast majority of cases; indeed he gives the percentage as 90. He is led, therefore, to describe the mobile right colon as abnormal, an opinion on which many would join issue with him, although the decision is admittedly difficult, not alone on questions of fact, but also on points of interpretation, of physiology as well as anatomy. The right colon, according to M. Grégoire, extends to a point on the transverse colon where the second part of the duodenum crosses behind it. The division is made on grounds of peritoneal fixation, instead of on the more common ground of development, vascular supply, and supposed colonic sphincter. We realize, therefore, that M. Grégoire, when he speaks of mobility of the right colon, is talking of a considerable portion of gut.

The description of the arterial supply of the colon is particularly good, and we are glad to see a workmanlike account of the "critical point" of Sudeck or Hartmann. M. Grégoire explains this greatly overemphasized point in surgical anatomy and gives the real reason for its importance, which is this: If the surgeon ligatures the superior haemorrhoidal artery low down he is working near the gut. If he works along the mesosigmoid near the bowel he will cut into and destroy the anastomotic loops which run parallel with the bowel and not far from it, and so greatly endanger the vitality of the bowel. If, on the other hand, he ligatures the superior haemorrhoidal artery high up he is more likely to keep well away from the gut. Should he fail to do so and disturb the vascular loops he will still get sloughing of the bowel, in spite of his first high ligature.

The illustrations are separately printed to face the pages of print and this allows them to be of unusually large size—a great comfort to the reader.

PSYCHO-ANALYSIS.

Studies in Psychoanalysis[5] is a translation of a book by M. CHARLES BAUDOUIN, whose name is familiar to psychopathologists in this country on account of his work on suggestion and auto-suggestion. The volume is divided into two parts; the first is concerned with theory, and the second with an account of the analytical study of twenty-seven concrete cases. The author does not strictly adhere to Freud's theories; his psychological outlook is based on his own experience and the teaching of other psychologists, such as Jung, Adler, and Flourney, as well as that of Freud. Generally speaking, throughout this book more stress is laid on the normal than on the pathological, and, in the view of its author, analysis is a method of education or re-education rather than a curative method. The outline given of an affective theory of the association of ideas is a useful contribution to normal psychology. The process of "condensation" which Freud has recognized and described in dreams is here exhibited as a general law of the imagination rather

[3] *Les Greffes Chirurgicales.* By Dr. Pl. Mauclaire. Paris: J. B. Baillière et Fils. 1922. (Roy. 8vo, pp. 312; 102 figures. Fr. 25.)

[4] *Anatomie Médico-chirurgicale de l'Abdomen.* II. *La Région Sous-thoracique de l'Abdomen.* By Raymond Grégoire. Paris: J. B. Baillière et Fils. 1922. (Roy. 8vo, pp. viii + 189; 75 figures, 60 plates. Fr. 30.)

[5] *Studies in Psychoanalysis.* By Charles Baudouin. Translated from the French by Eden and Cedar Paul. London: George Allen and Unwin, Ltd. 1922. (Demy 8vo, pp. 352. 12s. 6d. net.)

than as a mechanism peculiar to the thought processes in sleep. In showing that the same laws are operative in dreams and the waking state, M. Baudouin draws an interesting parallel between the conceptions formulated by Freud on the one hand and Ribot on the other, and thereby indicates some useful points of contact between psycho-analysis and conventional psychology.

As regards the practice of psycho-analysis, the author is of opinion that it is inevitable that suggestion should influence the analysis, however careful be the attempt made to exclude it. He himself advocates a combination of auto-suggestion and psycho-analysis, a method of treatment which has been commended by Dr. William Brown in this country. Dr. Eden Paul and Mr. Cedar Paul, the translators of this book, provide a useful introduction.

NOTES ON BOOKS.

THE aim of *L'Année Médicale pratique*,[6] edited by Dr. CAMILLE LIAN, is to give a concise and readable account of the most important acquisitions in medicine, surgery, and obstetrics in a series of articles written by thirty contributors, with references to current literature appended. French work naturally receives the greatest attention, but foreign literature, especially that of the United States, has also been laid under contribution, though we have found barely ten references to British journals. The volume should prove a useful work of reference to those who wish to gain some acquaintance with recent French medicine.

The fifth revision of the *Pharmacopoeia of the Royal Northern Group of Hospitals*[7] is a useful little production, which contains a number of valuable practical hints. It is divided into sections—dermatological, children's, etc.—and is provided with a good index. The *Pharmacopoeia of St. Thomas's Hospital*[8] for 1922 is rather more elaborate, and is more than twice the size of the other; it is interleaved with blank pages for additions, and has nearly a hundred pages of notes and memoranda on the *British Pharmacopoeia*. A section deals briefly, but to the point, with the treatment of cases of poisoning, and some useful comparative tables of weights and measures (metric, imperial, and apothecaries') are also given.

The second edition of Dr. HEINRICH LEHNDORFF'S[9] short textbook of children's diseases includes an account of Pirquet's system of feeding, the doctrine of avitaminoses, and Finkelstein's classification of nutritional disorders.

—In the review published last week (p. 931) of Hope's *Industrial Hygiene* the price was erroneously given as 21s.; it should have been 25s.

[6] *L'Année Médicale pratique.* Revue annuelle des acquisitions cliniques et thérapeutiques. Publiée sous la direction du Dr. Camille Lian. 7me année. Paris: A. Maloine et Fils. 1923. (Fcap. 8vo, pp. xviii + 484. Fr. 18.)

[7] *Pharmacopoeia of the Royal Northern Group of Hospitals.* Fifth revision. London: Waterlow and Sons, Ltd. 1922. (Cr. 16mo, pp. 64.)

[8] *Pharmacopoeia of St. Thomas's Hospital.* Compiled (under the direction of a committee of the medical and surgical staff) by J. A. Jennings, pharmaceutist to the hospital. London: H. H. G. Grattan and the bookstall, St. Thomas's Hospital. 1922. (Cr. 16mo, pp. 175. 3s. net, 3s. 2d. post free.)

[9] *Kurzes Lehrbuch der Kinderkrankheiten.* Von Dr. Heinrich Lehndorff. Zweite umgearbeitete und vermehrte Auflage. Vienna and Leipzig: Josef Safár. 1922. (Roy. 8vo, pp. 276.)

THE LATE DR. A. G. SIMMINS.

THE following additional subscriptions have been received by the Committee whose appeal on behalf of the children of the late Dr. A. G. Simmins was published in the BRITISH MEDICAL JOURNAL of April 21st, 1923, page 696. The fund, which is still open, has almost reached £1,000. Cheques and postal orders should be sent to the Treasurer, Simmins Appeal Fund, Royal Northern Hospital, Holloway, N.7.

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INQUIRY ON VENEREAL DISEASE.

REPORT OF LORD TREVETHIN'S COMMITTEE.

A YEAR ago the then Minister of Health appointed a committee to inquire into certain aspects of the problem of venereal disease with a view to an authoritative pronouncement on its medical aspects. The committee was appointed in response to a proposal by Lord Dawson of Penn, who suggested as the subject for inquiry two questions: (1) What, in the present state of knowledge, are the most efficient medical measures for preventing these diseases? and (2) How far is it ethically justifiable to apply such measures? Sir Alfred Mond approved the suggestion, and in January, 1922, Lord Dawson got together a Committee of Selection, which secured the services of a Committee of Inquiry consisting of Lord Trevethin, late Lord Chief Justice of England (chairman), Mr. T. J. Tomlin, K.C. (vice-chairman), Mr. C. J. Bond, F.R.C.S., Surgeon Commander Reginald Bond, R.N., Dr. John Brownlee, Professor Bulloch, M.D., F.R.S., Dr. D. S. Davies, Professor G. Dreyer, M.D., F.R.S., Group Captain Martin W. Flack, Director of Medical Research, R.A.F., Dr. F. E. Fremantle, M.P., Dr. Dorothy Hare, Professor H. R. Kenwood, M.B., Sir William Leishman, F.R.S., Dr. F. N. K. Menzies, Sir Frederick Mott, M.D., F.R.S., Dr. Morna Rawlins, Dr. J. H. Sequeira, Sir Bernard Spilsbury, and Mr. Kenneth Walker, F.R.C.S. On the advice of the Committee of Selection the instruction for the Committee of Inquiry was as follows: "To consider and report upon the best medical measures for preventing venereal disease in the civil community, having regard to administrative practicability, including cost."

The Committee of Inquiry has now presented its report,[1] which is signed by all the members of the Committee except Professor Bulloch, who resigned his membership at an early stage of the proceedings. In the first paragraph it recalls the circumstances of its appointment and its terms of reference; in the second it states that it has had twenty-eight meetings and that there have been in addition seven meetings of subcommittees; and in the third it reports that it has examined a large number of witnesses, has received written statements, and has consulted a large quantity of literature, both British and foreign. The remainder of the report is as follows:

4. It will be observed that under the terms of reference the functions of the Committee are confined to the considera-

[1] H.M. Stationery Office. 3d. net.

tion of medical measures. Having regard, however, to the origin and nature of venereal diseases, the Committee feel that, in relation to the civil community, medical measures alone can never operate as an absolute preventive of disease, but their success must always depend largely upon the attitude towards them of the community and the co-operation of the community in securing their largest effect. This co-operation can only be hoped for if full knowledge of the nature of the problems to be faced becomes common property.

5. Although, therefore, we are confined by the terms of reference to the consideration of medical measures, it may not be out of place to indicate our view that there are other measures which should be employed contemporaneously with medical measures, if such last mentioned measures are to be made a success.

6. For example, the extension of knowledge as to the nature of venereal disease and its consequences is of the first importance; the community should as far as possible be made to appreciate:

(*a*) That promiscuous intercourse is the main cause of the prevalence of venereal disease;
(*b*) That there is no absolute preventive except continence, and a single exposure may result in infection;
(*c*) That a large number of the sufferers from venereal disease are innocent persons, especially women and children;
(*d*) That syphilis is a disease of great gravity, which, if not treated in its early stages, may have serious results, including affections of the circulatory system and of the nervous system, as, for example, general paralysis of the insane;
(*e*) That syphilis is transmissible by a mother to her children, and is a frequent cause of miscarriages, stillbirths, and deaths in early infancy, and, in children who survive, of mutilating deformities, deafness, blindness, mental disease, and other defects;
(*f*) That gonorrhoea is a more serious disease than is commonly believed, and, if not promptly treated, may have serious after-consequences;
(*g*) That gonorrhoea is a frequent cause of sterility and serious pelvic disease in women and a cause of blindness in children born of women suffering from gonorrhoea;
(*h*) That the presence of these diseases in the community is a menace to the maintenance and advancement of the physical and intellectual standard of the race.

7. Again, in addition to the spread of knowledge it is necessary that measures should be pursued which will diminish those conditions of life which tend to foster promiscuous intercourse and the spread of disease.

8. Dealing with medical measures strictly, they appear to fall into two categories:

(*a*) Medical measures for preventing disease in, or minimizing the risk of disease to, persons exposed to infection; and
(*b*) Medical measures for rendering non-infective and curing diseased persons.

9. With regard to head 8 (*a*), highly controversial questions are involved. It is established that in the laboratory, under conditions approximating to those which obtain in intercourse, disinfectants will destroy both *Spirochaeta pallida* (the germ of syphilis) and the gonococcus (the germ of gonorrhoea), and we think that a man who after exposure is thoroughly and promptly disinfected by disinfectants of appropriate nature and strength runs little risk of infection. The chance of failure, however, increases rapidly as the interval between exposure and the application of disinfectants lengthens, and the conclusion seems to be that in syphilis such disinfection as mentioned above within an hour would generally be successful, and that in the case of gonorrhoea it has a prospect of success after a longer interval.

10. It seems, however, to be agreed on all hands that it is extremely difficult for a woman to disinfect herself, and that the prospects of success from disinfection by another person, however skilful, are in the case of a woman less than in the case of a man.

11. The question of disinfection falls to be considered under two headings:

Disinfection by the person himself (hereinafter called self-disinfection), and
Disinfection at the hands of a trained person (hereinafter called skilled disinfection).

Obviously the chances in favour of success are greater in the case of skilled disinfection than in the case of self-disinfection, but we see no reason to doubt that an intelligent man, if furnished with reasonable instructions, could in favourable conditions effectively disinfect himself.

12. The foregoing conclusions as to disinfection of the individual do not, however, carry very far in determining the question whether it is advisable for the purpose of preventing venereal disease in the civil community to introduce any system or measures for affording to the general public facilities for disinfection. From the nature of the case there is very little direct evidence to assist a conclusion. The matter is largely one of speculation, influenced in each case by the views which the exponent holds generally in regard to the tendency of human nature and on questions of a moral and social character.

The important evidence available under this head is derived from the experiences which have been obtained from measures taken in the fighting forces of our and other countries. We have had placed before us a large body of evidence of this character relating both to self-disinfection and skilled disinfection.

Where satisfactory results were recorded, a great difficulty arises in determining how far those results were due to the prophylactic methods employed, or were influenced by other factors in the case—such, for example, as regulation of hours of leave of absence, control of or exclusion from dangerous places, liquor control, imposition of penalties upon men becoming infected, the provision of facilities for recreation, and the moral effect in time of war of appeal for restraint on grounds of patriotism.

Further, the prevalence of disease among women has probably varied widely in different areas and it has rarely been measured.

Where, however, satisfactory results were not recorded, discipline appears to have been defective or the control slack or the medical supervision or instruction inadequate or lacking in enthusiasm, and there is much force in the argument that in any large community a condition of control and influence affecting the life and conduct of all its members such as obtains in a military body under efficient command is essential to securing substantial results from any system of disinfection.

13. We think, however, that we are justified upon the evidence in coming to the following conclusion:

> That a community where there has been efficient instruction and where there is such a condition as arises from the control and influence mentioned above substantial results may reasonably be expected to follow from prophylactic measures, but that the actual result is often less favourable than has been claimed.

14. It must be remembered that to a large extent exposure to infection takes place in conditions in which prompt disinfection is either impossible or can only be carried out at great disadvantage. Further, the application of disinfection by a man to himself after exposure demands an effort and care which the circumstances do not tend to promote. It is urged by some that any system of disinfection would tend to increase the number of exposures and to raise the disease rate. We have received no evidence of facts in support of this view, and we are inclined to think that those who hold it attach too much weight to the deterrent effect of the fear of disease. But, however this may be, upon the evidence which we have heard we conclude that the success of any general public facilities for self-disinfection is likely in the civil community to be very small. At the same time, in face of the fact that disinfection in the case of an individual user, if properly and promptly applied, will in all probability be successful, we do not think that there is any justification for putting obstacles in the way of individuals who desire to procure the necessary disinfectants. The law does not to-day prevent the sale of sheaths, which afford by mechanical means a measure of protection against venereal disease, and we think that the law should be altered so as to permit properly qualified chemists to sell *ad hoc* disinfectants, provided such disinfectants are sold in a form approved, and with instructions for use approved by some competent authority. We suggest that the Medical Research Council should be invited to undertake this task. We think, how-

ever, that the commercial advertisement of *ad hoc* disinfectants should be prohibited.

15. We may add that from a medical point of view the instruction by medical officers of venereal disease clinics of male persons attending such clinics in the preventive use of disinfectants would afford a useful means of educating the community.

16. In conclusion on this head, our view is that money spent on a general system of providing facilities for self-disinfection would certainly be less profitable than money spent either on treatment of disease or on those measures of education and improvement of social conditions to which we have referred above.

17. With regard to skilled disinfection, its chances of success must necessarily be much limited by reason of the time that will generally elapse between exposure and disinfection. The cost of any general system of skilled disinfection would be large: it is a system which is wholly inappropriate to rural districts or small towns, and we do not recommend its adoption as part of any general system.

18. With regard to head 8 (*b*), the treatment of disease, we have reached the following conclusions:

> (i) That, speaking generally, the general medical practitioner is not yet adequately equipped with the most advanced knowledge of venereal diseases and their treatment to enable him to deal competently with all the cases that come before him, and that an improvement in medical education in regard to venereal disease is necessary; and
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> (ii) That the work of existing venereal disease clinics is of high value, and that the system is one which ought to be encouraged, extended, and improved.

19. With regard to clinics, one of the difficulties in practice arises from the tendency of patients to cease treatment before they have completed their course. According to the statistical evidence the amount of this defaulting is serious, but a closer investigation carried out in some treatment centres shows that by no means all the patients who have discontinued attendance before completing treatment were infectious. A large number of syphilis cases attending these centres were from the commencement of the treatment past the infectious stage. Further, in gonorrhoea cases the standard of cure suggested by the Ministry of Health is very high, and to comply with it patients must be treated long after all bacteriological evidence of the presence of gonococci has disappeared. Many cases classed as having failed to complete treatment appear to have ceased attendance with negative bacteriological tests for gonococci, and it is reasonable to suppose that a fair proportion of these were not infectious. The conclusion is that from the point of view of the public health the defaulting is not so serious as the statistics make it appear. It remains, nevertheless, an important factor in the spread of venereal disease.

20. The question of defaulting is a topic which necessarily leads to the consideration of the question of compulsory notification of venereal disease. Apart from any statistical value which may result from notification of disease, notification itself is of little assistance unless it is supported by a system of compulsory treatment, and, if necessary, detention. It is a fact that the stigma which venereal disease carries renders many sufferers reluctant to submit themselves to treatment, and sufferers will surely be led into concealment by any measures which threaten publicity. The principle of the present system is, by maintaining secrecy, to encourage sufferers to come to treatment and to continue treatment; and we think that in the present state of public opinion any system of general compulsory notification of venereal disease would tend to concealment and would prove a backward step.

21. It has been suggested by some that in order to secure unbroken attendance of patients at clinics a modified form of notification, supported by appropriate compulsory measures, should be applied to those who have once attended the clinics in order to secure their continued attendance; but in our view such a system would be more likely at the present time to deter than to encourage attendance, and it seems difficult to justify the imposition of a penalty on those who have come for treatment while leaving untouched those who make no effort to seek treatment.

22. There is another grave difficulty in the way of any form of notification reinforced by measures to compel treatment, that in the present state of knowledge there is no standard of non-infectivity or cure generally accepted by the medical profession, and until this has been attained it is difficult to see how any system involving notification and compulsory measures of treatment could be applied.

23. One main objective, in our view, should be the improvement and extension of the present clinic system. There are many respects in which we think improvement might be made: The provision of more suitable accommodation, the extension of hours of sessions, including greater facilities for intermediate treatment of gonorrhoea, more adequate provision of beds for in-patient treatment, the establishment of more hostels for women attending clinics and living under social conditions which render it difficult for them to treat themselves in their homes, and the establishment of more homes or hospital beds for the treatment of children.

24. As it is agreed that it is essential for the prevention of disease that there should be widespread knowledge among the community of the nature and consequences of these diseases, it follows that the importance of giving repeated personal instruction and warning to patients attending the clinics cannot be overstated. We think that this duty must always devolve mainly on the doctors, but that it might well be supplemented by trained social workers, who for this purpose and that of giving general advice and assistance should be attached to the staff of the clinic.

25. It has been shown that if syphilis is detected in the pregnant woman, treatment during pregnancy is remarkably successful in securing healthy offspring, and gonorrhoeal infection of the infant at birth may generally be prevented if the danger is known. Increased facilities for medical supervision of women during pregnancy is desirable, and may in part be obtained by an extension of the system of antenatal clinics, and by the instruction of midwives, who would refer suspicious cases to a doctor. In this connexion we would also call attention to the importance of including instruction on venereal diseases in the general training of midwives and nurses.

26. All improvements must no doubt be limited by the funds available, but it would facilitate the provision of more adequate accommodation if a system of capital grants such as have been made in connexion with the treatment of tuberculosis were available in proper cases.

We are not in a position to make recommendations more specific than the above, and we have therefore confined ourselves to indicating some of the directions in which improvement is possible.

27. There seems to be unanimity amongst those who have given evidence before us as to the desirability of making patients who can afford to do so pay for their treatment at the clinics, but in view of the importance of encouraging attendance for treatment we do not think that any compulsory step can usefully be taken at present to secure this result.

28. We think it would be desirable if a practical scheme could be worked out that, with a view to providing treatment for patients in rural areas or districts where clinics are not easily available, a panel of medical practitioners should be constituted through whom treatment could be provided. This might be done by a development of the present system, under which the free issue of salvarsan substitutes is made to certain approved practitioners. It would have the further advantage of increasing the number of practitioners with experience of the treatment of venereal diseases.

29. Some evidence has been adduced before us in regard to Poor Law infirmaries, and we think it necessary to organize more thoroughly the methods which obtain at the present moment in Poor Law infirmaries for the treatment of venereal disease. It would, of course, be desirable from the medical point of view that those who enter Poor Law infirmaries suffering from venereal disease should be detained for treatment and cure, and indeed a recommendation to this effect was made by the Report of the Royal Commission on Venereal Diseases, but the uncertainty as to the standard of non-infectivity and cure, to which we have already referred, seems to us a difficulty in such a measure. The same observation would apply to any proposal for the detention after the expiration of their sentences of prisoners

found to be suffering from venereal disease. We doubt whether at present any more can be done than through the agency of social organizations, such as the Prisoners' Aid Society and others, to endeavour to influence the sufferers to obtain and continue proper treatment at the clinics.

30. In connexion with the spread of venereal disease we think that the close attention of the authorities concerned should be given to the following points:

(1) The entry into this country of persons suffering from venereal disease may be a serious source of danger;
(2) The treatment of seamen suffering from venereal disease is a matter of great importance and requires special organization; and
(3) There are found to be a considerable number of persons suffering from venereal disease among mental defectives, and the present arrangements for their control and treatment are inadequate.

31. We do not in this Report discuss many proposals which have been made to us with reference to alterations of the existing law with regard to venereal disease—as, for example, that it should be made a statutory offence knowingly to do any act calculated to expose any other person to infection, and the enactment of measures preventing the marriage of persons suffering from venereal disease. Such topics as these do not strictly fall within the terms of reference.

32. We think that properly and promptly applied disinfection in the case of an individual man would almost certainly prove effectual, but that so far as the community at large is concerned no sufficient case has been made to justify the introduction at the public expense of a general system of facilities either for self-disinfection or skilled disinfection, and wherever there is a limited amount of public money available, we have no doubt that money spent on

(*a*) Treatment of disease;
(*b*) Continuous education of the community in regard to the nature and dangers of venereal disease and the importance of seeking prompt and skilled treatment; and
(*c*) The elimination of those conditions of life which tend to foster promiscuous intercourse and the spread of disease

will be money better spent than any money expended on establishing a general system for affording facilities for disinfection.

33. Notwithstanding what we have said above we are of the opinion that it may well be that in certain areas special measures for the prevention of venereal disease would be justifiable—for example, measures for dealing with defaulters, or in a large seaport town public ablution centres for disinfection in the neighbourhood of docks—and we think that local health authorities who are able to make to the Ministry of Health a special case for some such special measure should be allowed, at any rate for some limited period, by way of experiment, to carry out the measures they propose under the present system, by which a contribution towards the expense is made by the State. In this way there may ultimately be built up a body of experience of great value in determining future policy.

34. It is right to add that, so far as conclusions can be drawn from the available figures of attendances at clinics, venereal disease is once more, as it was before the war, substantially declining.

35. In this Report we have directed our attention exclusively to syphilis and gonorrhoea. Soft chancre is a purely local affection and does not exercise any sensible influence on public health.

36. The views and recommendations recorded above have been based on the existing medical knowledge as to the prevention and treatment of venereal diseases, and the Committee realize that certain modifications might be called for in the light of important new knowledge of which there are indications.

37. We desire to record our thanks to the witnesses who have furnished the Committee with evidence and to the Ministry of Health and its officials for their assistance.

We also desire to express our appreciation of the valuable service rendered to us by Mr. H. A. de Montmorency, of the Ministry of Health, who has acted as Secretary to the Committee.

CANCER RESEARCH.

THE BRITISH EMPIRE CANCER CAMPAIGN.

THE PROBLEM TO BE SOLVED.

IT is unquestionable that our knowledge of the etiology of malignant disease is imperfect, so imperfect that no system of prophylaxis has as yet even reached the stage of serious discussion. It can, of course, be said with perfect truth that we do not at present possess an absolutely sure defence against any other of the great killing diseases except smallpox and enteric fever, but no rational person doubts that our defences against, for instance, tuberculosis are far stronger than a generation ago. In the case of tuberculosis, the improvements of our means of resistance have not been the product of any one technical method of research, but have been based upon a combination of clinical, experimental, and epidemiological discoveries. Before the isolation of the bacillus of tuberculosis made possible the employment of an exact experimental technique, much information respecting the general etiology of the disease, its geographical and economic concomitants, the conditions of its spreading, etc., had been accumulated. *Pari passu* with contemporary experimental work, this statistical and epidemiological knowledge has been extended and made more exact, has served both as a control of and stimulant to experimental work. The same remarks apply, with still greater force, to the case of enteric fevers, where our prophylaxis has been so brilliantly successful. In research upon cancer, the liaison between experimental and observational investigation has been far less complete. The laboratory investigations of experimentally induced or naturally occurring cancers in animals other than man have in point of accuracy and sagacity attained a standard unsurpassed in any other branch of medical research.

As was pointed out in commenting on the matter last week, it is not certain that the method of frontal attack is that most likely to lead to the desired result. In the study of the etiology and pathology of cancer it is necessary to take the widest possible view, for the clue may come from biochemistry, cytology, or immunology, or possibly the study of invisible viruses. The notes on cancer research in various places in this country published last week (p. 947 et seq.) show that the need for this is generally understood. It will have been seen also that it is now more freely recognized that laboratory workers should receive greater assistance from the clinician and the vital statistician. Up to very recent times, this lack of support was inevitable, because the materials for an epidemiological or statistical investigation of the malignant diseases were meagre and imperfect. They are still far inferior to what can be had in some other branches of medicine, but it is now certain that differences of rates of mortality from particular forms of malignant disease which characterize several European nations are too great to be explained as mere variations of accuracy of record. That point having been established, and we think it has been established, the questions at once suggest themselves whether national differences of opportunity for resort to early surgical treatment are sufficient explanations or whether etiological significance attaches to differences of national habits of life. Answers to such questions, if unequivocal, would suggest possible lines of experimental investigation. Nature, as Lord Moulton once said, always answers the question the experimenter asks her—not the one he meant to ask, but the one he did ask. Such inquiries as we have indicated cannot solve the problem—or rather problems—of cancer, but are one way in which the experimenter can be helped to ask the right question. Plainly, the realization of these ideas, which, we believe, inspired the appeal published last week (p. 947), involves not only the availability of a large sum of money but also, as we have already pointed out, that of the best scientific advice in its allocation.

The following notes will serve to complete the account we gave last week of the institutions engaged in the investigation of cancer and its treatment.

THE RADIUM INSTITUTE, LONDON.

The Radium Institute was opened at 16, Riding House Street, W.1, in August, 1911, and is, therefore, just completing its twelfth year of work. It owes its existence to the generosity of Lord Iveagh and the late Sir Ernest Cassel, and is possibly the most lavishly equipped radium institute in existence. It possesses both an out-patient and an in-patient department, operating theatre, chemical, physical, and pathological laboratories, photographic and *x*-ray departments. Its medical work is concerned chiefly with the treatment of inoperable and advanced cases of malignant disease in which there is no possibility of further surgical intervention. Much pioneer work has been accomplished in radium therapy, and the annual report furnishes a yearly record of the cases treated, the technique adopted, and the results obtained. A comprehensive and effective type of cross-indexing of all patients is used, which permits of immediate reference to any case or group of cases, and information as to the possible benefit to be derived from the radium treatment of any disease is readily given to any medical practitioner. Full records of all cases are taken, supplemented when necessary by photographs and microscopical sections.

During the past twelve months much has been done in the direction of intensive radium therapy. Certain patients suffering from diseases such as lymphatic leucocythaemia, and lymphosarcomata, are being subjected to intensive radiation with quantities of radium ranging from half a gram to two grams or more. The results so far obtained have proved distinctly encouraging, though much care has to be exercised in the selection of cases subjected to this form of treatment.

The Chemico-Physical Laboratory has initiated many modifications and improvements in the preparation and handling of radium emanation, and dispatches are made daily to all parts of the United Kingdom of radium emanation apparatus for the treatment of patients suffering from cancer, who are unable, for any reason, to come to the Radium Institute. A detailed clinical report of each case so treated is, however, submitted to the medical staff of the Institute before any apparatus is supplied, in order that the appropriate dosage, screening, and exposure may be determined. Numerous researches have been carried out in the Pathological Research Laboratory, the most notable being those on the blood changes induced by prolonged radium irradiation, which were largely responsible for the formation of the *x*-ray and radium workers protective committee.

Further, the pathological research department has been responsible for contributions to the study of the part played by the lymphocyte in the production of cancer immunity, and of the susceptibility of the mucosa of the alimentary canal to radiations, and the production of definite modifications in the power of its resistance to bacterial and other infections.

EDINBURGH.

A considerable amount of detail work bearing upon the cancer problem has been done in Edinburgh during past years. For example, the work of Stiles some thirty years ago upon the lymphatics of the breast and axillary lymph glands was an important contribution to our knowledge of metastatic growths and greatly influenced surgical procedure in cancer. Work on the breast has been conducted recently by Mr. John Fraser by tracing the histological changes that take place in various physiological and pathological states of this organ with a view to establishing those that approximate most nearly to malignancy. An investigation of the nature of the cancer cell, from the morphological point of view, is being carried on by Dr. J. W. Dawson, histologist to the Royal College of Physicians' Research Laboratory. This research consists essentially in a comparison of the varying character of the morbid cell as found in different parts of a cancerous growth, in which the cells have arrived at various stages of maturity. Lieut.-Colonel A. G. M'Kendrick, superintendent of this laboratory, has investigated the question of house infection from a critical standpoint, and his results were published recently in the *Edinburgh Medical Journal* (March, 1923); he has reached the conclusion that the cancer statistics at present available afford no evidence of contact infection, or of infection resident in particular houses. The most systematic research recently published on cancer in Edinburgh is that carried out by Dr. James Young (*Edinburgh Medical Journal*, June, 1922, and September, 1922, and *Journal of Pathology and Bacteriology*, vol. xxv, 1922, p. 151). A special organism has been obtained by this worker from a number of carcinomatous growths of human origin, and cultivated under partial anaerobic conditions in a weakly acid medium. It was used for inoculation of mice and other animals; in two cases carcinomatous tumours developed in the mice and in twelve large lymphomatous growths. A further study of the organism, made on behalf of the Medical Research Council in the Royal College of Physicians' Laboratory, showed that it belonged to the coli-typhoid group.

THE NEW BUILDINGS OF UNIVERSITY COLLEGE HOSPITAL AND UNIVERSITY COLLEGE.

VISIT OF THE KING AND QUEEN.

THE King and Queen on May 31st laid the foundation stones of the new obstetric hospital and the new nurses' home attached to University College Hospital and opened the new Anatomy Building of University College. These extensions, as already fully explained in these pages, are the result of the gift of the Rockefeller Foundation, amounting to £835,000 for the purposes of the Medical School and £370,000 for those of the College.

In preparation for the royal visit a pavilion was erected over a portion of Huntley Street at the side of the medical school, and so skilfully contrived and decorated that it was difficult to imagine that the proceedings were taking place in the middle of a public thoroughfare, and that the stones on either side ready to be lowered into position represented the outer walls of two buildings above opposite pavements. Among those present were: The French and Italian Ambassadors, the Netherlands Minister, the Counsellor of the American Embassy (Mr. Post Wheeler) and the staff of the Embassy, and Dr. G. E. MacLean, director of the American University Union in Europe. The academic robes of the large audience indicated not only London but many other universities. The staffs both of the college and the hospital were in full attendance, the passages were lined by sisters and nurses, and at the entrance a guard of honour was formed by the medical unit of the University of London Officers' Training Corps. The controller of the ceremony, who merited high praise, was Dr. A. M. H. Gray, vice-dean of the medical school.

Their Majesties, who were attended by the Minister of Health (Mr. Neville Chamberlain), were received on arrival by the Duke of Bedford (President of the Hospital), the Princess Mary Louise (Chairman of the Nursing Committee), Sir Ernest Hatch (Chairman of the General Committee), Mr. H. J. Waring (Vice-Chancellor of the University of London), Viscount Chelmsford (Chairman of the University College Committee), and the Mayor of St. Pancras. A bouquet was presented to the Queen by the little daughter of Dr. Sidney Martin, physician to the hospital. The members of the committee and the principal members of the staff of the hospital and medical school were presented by Sir Ernest Hatch, and the Vice-Chancellor presented the Principal of the University (Sir Cooper Perry), the Provost of University College (Sir Gregory Foster), the Dean of the Faculty of Medical Sciences (Professor Elliot Smith), and others.

The DUKE OF BEDFORD extended a formal welcome to the King and Queen, and Sir Ernest Hatch read an address, in which he recited the circumstances of the Rockefeller gift, whereby, he said, the hospital and medical school were enabled to provide 120 additional beds for the purposes of the medical and surgical units, and 60 beds for the new obstetric unit, with adequate provision for laboratories, including a special laboratory for biochemistry, and to build

and equip a new nurses' home to provide accommodation incidental to these changes. University College also was placed in a position to proceed with a scheme for the erection of new buildings for anatomy and the allied sciences of histology and embryology, and for the extension of facilities for teaching physiology and pharmacology. The medical school and college were deeply sensible of the responsibility which these gifts involved; but he considered their record in the past, both in training medical men and women for the service of the State, and in advancing medical knowledge and practice through scientific method, was sufficient to inspire confidence that the trust they had undertaken would be fulfilled. The increased accommodation would impose an extra financial burden on the hospital, but the service which it would render to the sick, especially in the department of obstetrics, would become so much more effective that the fullest reliance could be placed on those who upheld the voluntary hospital system to furnish the funds annually required.

THE KING ON MEDICAL EDUCATION.

The KING, after expressing his and the Queen's pleasure in the occasion, went on to say that this was no ordinary extension of a hospital or college. The vast scale of the new development would in itself render it remarkable. There could be few instances on record in which any foundation had received £1,200,000 from a single benefactor in a single gift. The magnificent generosity of the Rockefeller trustees was the more impressive since it was bestowed by citizens of the United States upon a college and hospital in London, and thus upon the people of Great Britain and the Empire. The selection of University College, London, to receive this princely endowment was not merely a high and well deserved compliment, and the creation of another tie of sympathy and friendship with the United States, but it was also the evidence and declaration of the conviction of those responsible for the gift that the progress of science and the welfare of mankind were not delimited by national or racial boundaries. It was not only the magnitude of the endowment which lent importance to the occasion. The buildings were designed for new and far-reaching developments in the traditional organization of British medical education. The college and school had been selected by the Rockefeller trustees for their benefaction from among many distinguished institutions, partly because their situation was central and yet afforded room for expansion, and partly because the close connexion of the hospital and medical school with the college provided favourable opportunities for that intercourse between medicine and other branches of learning which was the surest defence against the evils of a narrow specialism. But he understood that the trustees were chiefly influenced by the establishment at the college of what had come to be known as the "unit system" of medical teaching, and, being convinced of the value of this reform, they desired to supply the resources for carrying it out in an English university on a scale worthy of its importance both to education and research. The essence of the unit system, as explained in the memorandum on medical education in England, recently published by the Ministry of Health, lay in effecting the closest possible correspondence between the science and the art of medicine, between research and education, and between theory and practice, and, as a means to this end, in placing the chief branches of medical education each under the direction of a head who was free to devote his whole time to teaching, research, and hospital practice. No appreciation could be too great for the devotion with which eminent physicians and surgeons had given, and were giving, their services to the treatment of hospital patients and the training of students. But the advance of knowledge and the ever-rising standard of medical education had necessitated reorganization, which would give impetus to the more effective training and equipment of the British practitioner, with corresponding benefits to the health, well-being, and happiness of the people. The underlying principle was as old as Ecclesiasticus: "The wisdom of a learned man cometh by opportunity of leisure, and he that hath little business shall become wise." Its specific application to medical teaching and research was new, in this country at all events. In conclusion, his Majesty referred to the Queen's particular interest in the maternity hospital and the obstetric unit of which it formed a part, and also in the manner in which the claims of the nursing service had been considered in allocating the endowment. He added that the privilege of accepting this munificent gift of the Rockefeller trustees imposed obligations upon the staff to fulfil the ideals which it represented and upon the public to furnish the necessary support entailed. It was inconceivable that Englishmen should decline to welcome this generous challenge from our kinsmen across the Atlantic to a friendly rivalry in medical skill, devotion, and beneficence. He cordially wished godspeed to this great enterprise.

The New Obstetric Hospital and Nurses' Home.

Dr. G. F. BLACKER (dean of the medical school) requested the King to lay the foundation stone of the obstetric hospital, and Dr. Herbert Spencer (senior obstetric physician) handed to the King certain articles to be placed within the stone, including the programme of the day, a newspaper and coins, and the current edition of the Hospital Report, and Mr. George Hornblower (architect of the hospital) offered the trowel. The stone was lowered into place, and the King, after carefully using the maul and the level, declared it to be well and truly laid. A similar ceremony for the new building of the nurses' home was then performed by the Queen, Mr. Paul Waterhouse, the architect, offering to the Queen the trowel, which had a detachable handle which could be used as a parasol-holder, and was carved on one side after the coast-line of this country, and on the other after the coast-line of the United States. The inscription on both stones testified to the generosity of the Rockefeller Foundation.

The New Anatomy Building.

Mr. H. J. WARING (Vice-Chancellor of the University) then requested the King to open the new Anatomy Building, which he did by pressing a button. Mr. Waring also read a letter from Lord Rosebery (the Chancellor), who wrote that the gift of the Rockefeller trustees was a magnificent donation which, made soon after the conclusion of the great war, could not but emphasize the friendship which existed between ourselves and the United States. "No more substantial or welcome mark of this feeling could have been afforded, which we appreciate all the more in these days of difficulty. The object of the gift is the promotion of medical education and research, and our university is naturally gratified that it should have been chosen for the benefits of this splendid gift . . . The choice of University College and of University College Hospital Medical School as the direct beneficiaries of the gift is in full accord with the scientific tradition that has obtained both at the college and at the medical school since their foundation in 1827. We shall long cherish the memory of this supreme occasion."

At the conclusion of the main ceremony a procession was formed to the main entrance of the medical school, and in the school library their Majesties recorded their names in the visitors' book. Then they proceeded across Gower Street, under a pavilion borne by students, to the Anatomy Building, the museum of which was first visited, and here certain further presentations were made, including the architect of the building (Professor F. M. Simpson), the contractor (Sir James Carmichael), the vice-dean of the Faculty of Medical Sciences (Professor J. P. Hill), the Jodrell Professor of Physiology (Professor E. H. Starling), and the dean of the Faculty of Science (Professor D. M. S. Watson). After taking tea their Majesties inspected the building, entering the large lecture theatre, the room on the first floor which is to be devoted to the history of medicine under the direction of Dr. Singer, and the periodicals room and library; descending to the basement, they visited the dissecting room, the prosectorium, and the *x*-ray rooms, where a demonstration was given. Some anatomical preparations by Professor Elliot Smith also engaged their Majesties' attention. The royal visit lasted altogether nearly two hours, and, on leaving, the King and Queen again expressed their delight in the occasion, and referred particularly to the success of the planning and equipment of the Anatomy Building.

British Medical Journal.

SATURDAY, JUNE 9TH, 1923.

CANADA AND THE ASSOCIATION.

UNTIL the establishment of the Irish Free State, Canada was not merely the largest both in area and population of the British self-governing Dominions, but geographically the nearest to our own shores. Discovered by John Cabot, sailing from Bristol in 1497, the territory of Canada became a possession of Great Britain 160 years ago, and for more than half a century her various provinces have been united under the title of the Dominion of Canada. This vast country, the eldest of the daughter nations, with an area not much less than that of Europe and a population of nearly nine millions, is connected with us by innumerable ties, and these were strengthened by the war. This is particularly true of Medicine. As is well said in an editorial article in the current issue of the *Canadian Medical Association Journal*, "One of the results of the great war seems to have been a quickening of the more or less latent regard which the Mother Country, and each of the self-governing Dominions, have always entertained for each other in respect of their medical professions. . . . The great war did more perhaps than has been recognized yet to establish between the medical services of the mother land and the outlying Dominions that foundation of acquaintanceship and mutual respect upon which, if once it be laid, there tends to rise automatically a comely superstructure of active fraternity and goodwill. So that we are not surprised to find that within the last year or two the parent society, the British Medical Association, has arranged a greatly extended and more close relationship with the profession in New Zealand, Australia, and South Africa, as well as in the smaller British communities dotted all about the Seven Seas."

The same issue of our contemporary contains a letter from Dr. Alfred Cox, Medical Secretary of the British Medical Association. He expresses the regret felt by the parent body at the gradual loosening of the ties between our brethren in Canada and ourselves, and asks the Canadian Medical Association whether steps cannot be taken which would provide in some way for a continuing bond between us. In this letter Dr. Cox has managed to convey the feeling that underlies the two short paragraphs numbered 76 and 77 in the last Annual Report of Council, which refer to the possibility of devising such a link between the two Associations as, while strong in sentiment and mutual aid, would in no way fetter the autonomy of either body (SUPPLEMENT, April 28th, p. 132).

The desire for a renewal of friendly co-operation between the medical professions of Canada and the mother country is felt keenly by all who remember the Annual Meetings of the parent body held at Montreal in 1897 and at Toronto in 1906—the only occasions in ninety years on which the British Medical Association has met outside the British Isles. The war brought many of our Canadian colleagues and ourselves into very close touch, and we shall always remember their share in the work of the medical services of the Empire. In its efforts to maintain contact with the Dominion Branches the parent Association has never hampered the way in which they choose to conduct their own affairs; freedom in unity has been the working ideal. Bearing all this in mind we ask, with Dr. Cox, Is it really inevitable that the bond between the Canadian Medical Association and ourselves shall become less close and finally disappear? We profoundly hope not, and we agree with him that, if our desire is reciprocated in Canada, the most practical way of getting something done is to open up communications between representatives of both sides, meeting informally. The qualities needed in representatives would be a willing mind, an accommodating disposition, and a sufficient knowledge of the constitution and internal working of the Association represented.

The attitude of Canadian practitioners may perhaps be gauged by the replies received to a set of questions lately sent out to the profession at large by the Associate Secretary of the Canadian Medical Association. One of the questions asked was whether an invitation should be sent to the British Medical Association to meet again in Canada, perhaps in 1926. Of 1,328 replies received, 28 said no, 1,227 said yes, and 73 left this particular point unanswered. It is expected that the question will come up at the annual meeting of the Canadian Association to be held next week in Montreal.

Rather than comment further upon a matter in which we feel strongly, we prefer to quote again from the sympathetic editorial article in the *Canadian Medical Association Journal*. The reasons for some form of affiliation between the Canadian and British Medical Associations, it says, "lie upon the surface, and like the bonds of Empire may be found to be all the stronger because sentimental. No close and binding arrangement involving much additional financial responsibility or any impairment of local autonomy could be desired by either body. But an official connexion with the British Association and through it with the professions of the other Dominions has in it a great appeal to the imagination."

THE UNITS OF A WHOLE.

THE KING, when he laid the foundation stones of the new obstetric building and the new nurses' home of University College Hospital, and opened the new Anatomical Institute of University College, performed, as head of the State, acts which had two aspects. In the one aspect his presence, accompanied by the Queen, was the national summing-up of all the expressions of gratitude the Rockefeller Foundation has received since its magnificent gift to University College, and the Medical School and Hospital associated with it, for the advancement of medical education. In the other aspect it was evidence of the King's interest in hospitals, and his recognition of the fact that one of the functions of a large hospital is to train medical students and to maintain a high standard of medical education, which, in these days, can only be attained by bringing clinical work into close and habitual relation with the departments of biological research upon which medicine relies. University College, the Medical School, and the Hospital, are constitutionally separated in a rather bewildering manner, but looking at them from the outside it may be seen that a very complete school of the preliminary, the intermediate, and the advanced subjects has been brought together, if not within a ring fence, at least in physical contiguity, and that a degree of co-operation is being achieved which will ensure to student and teacher the skilled assistance needed at the many points where the various subjects come into contact. There are already at work in the Medical School and the Hospital two units—medicine and

surgery—and the addition to the hospital of a large obstetric department will make it possible to complete the third element.

The London clinical units were founded in 1919 and 1920, with money provided by the University Grants Committee, on lines suggested by Sir William Osler and others, for two purposes—partly to encourage discovery in medicine, and partly to quicken the apprehension of students by contact with the "growing points" of the science. All universities except London had professors of medicine already, but it is matter of common knowledge that in the past, though they were excellent physicians of the usual hospital stamp, they were not wantonly prolific in discovery.

The Grants Committee prescribed that the directors of the units should be professors in the University, and the University made an innovation by insisting that they should surrender private practice. The same rule has been adopted in one or two other universities here and in one or two in America. It obtains nowhere else. The monastic life has certain obvious advantages, but also certain drawbacks, and it is a good thing that other experiments are being tried. Many men will refuse to make the sacrifice, but there is a race growing up in the units themselves to whom the academic life will make a greater appeal. We cannot yet tell which will be the more satisfactory plan. The question will provide its own answer in time.

These foundations, however, made a considerable stir, and led to a considerable amount of reorganization and improvement even where no formal change was made in the condition of the professoriate. There has been a general tendency, first, to study the old methods of medicine more closely as well as the newer, and secondly to bring the anatomist and physiologist into more active co-operation with the clinical education. The London units have turned out a considerable body of original work in these three years; they have formed centres round which collect all the young graduates, whether home-bred or foreign, who wish to carry on their studies; they have influenced the general body of students by classes and demonstrations; and their clerkships and dresserships have been sought by the best, since they both demand and give facilities for a somewhat higher and more elaborate standard of work. They are thus no doubt breeding the future staff of the hospitals, and are at the same time affording a good training ground for clinical teachers.

There is probably no subject on which men so readily drop into catch phrases as that of education. A year or two ago "to bring physiology into the wards" was the accepted cry, and now the demand is "to teach the beginnings of disease." Both are excellent aims, but whereas the former requires young teachers who have but lately quitted the laboratory, the latter requires ripe experience. It is some comfort to reflect that both have been the object of teachers of medicine ever since medicine has been taught. It may be confidently predicted that they will not be neglected in the future.

THE VIENNA REPORT ON RICKETS.

Studies of Rickets in Vienna, 1919-1922, just published, and of which an abstract appears elsewhere in this issue (p. 987), is a document of more than ordinary interest and importance. It is essentially a clinical study; it touches important points of scientific matters which have recently been the subject of laboratory experiments; it deals in an authoritative way with the prevention, early diagnosis, and treatment of rickets. It is a report that especially concerns the practitioner and those engaged in child welfare work, and it is worth while considering some of its main conclusions.

The Vienna investigation of rickets may be described as a hospital study of early rickets. A large group of young infants were observed for many months, and under very exactly controlled conditions of diet and environment; these children were free from rickets on admission; in those who developed the disease there was an unusually exact knowledge of the conditions of food and hygiene. The broad results of this study of rickets in hospital wards were that the disease, on the strict test of the radiograph, never developed from May to December; that in the intervening winter months (January to April) seventeen cases of rickets developed in a group of children fed on sweetened cow's milk without cod-liver oil; that in twelve of these cases the radiographic diagnosis was made at or under seven months of age; that in winter a large group of infants fed on dried milk and given cod-liver oil remained free from rickets. These results confirm previous investigations, both clinical and experimental, which have indicated the pre-eminent value of sunshine and of cod-liver oil in the prevention of rickets, even in children whose defective diet predisposed them to the disease. A further series of observations of breast-fed babies, under less satisfactory hygienic conditions, showed that rickets, clinically diagnosed, was common in winter and not rare in summer; and that here cod-liver oil, while of great value, was not a complete prophylactic.

The controversial question of the vitamin theory of rickets is left by the Vienna investigation pretty much as it was. The cow's milk used, both fresh dairy milk and dried milk, in the controlled diets, was poor in the fat-soluble growth vitamin A, as were also the human milks tested. Not much advance is likely to be made until a more satisfactory test of vitamin content than the present biological one is discovered. Meantime the significant fact remains that cod-liver oil is, of all substances, the richest in its content of fat-soluble vitamin A, and that at the same time it is, apart from light, easily the most potent agent for the prevention and cure of rickets.

Of the two agents—light and some unknown element in milk—light would appear the more important prophylactic, and Francis Glisson's old association of rickets with moist and foggy climates now appears as a shrewd guess that hit the very truth. It is interesting to reflect that the winter incidence of rickets in the northern hemisphere, which has now been established both in America and Continental Europe, is less marked in Great Britain and Ireland. That may be ascribed by critics this year to the absence of summer here; but, on the other hand, our milder winter season permits much more life and movement out of doors than in Continental climates. We may also remember Charles II's praise of the English climate as the finest in the world, allowing as it did a man to be in the open air "more hours of the day and more days of the year" than in any other country. If it is true that light is the best protection against rickets, we have certainly, in the mildness of our winter season, a better opportunity of taking full advantage of it than in the rigorous winter of Vienna and New York. Without a sufficient exposure to radiant light it is probable that even good human and cow's milk have a narrow margin of safety, and may permit that disturbance of the delicate machinery of

calcium metabolism which is the essence of rickets. The important practical lesson of this report is that there are two sure weapons in the prophylaxis of rickets—light and cod-liver oil; but that the surer of them is light.

The report contains a good deal about the familiar clinical stigmata of rickets, craniotabes, cranial bossing, the rickety rosary, and enlarged epiphyses at wrists and ankles. As these clinical signs were nearly always verified by radiographs, and sometimes by histological evidence (the really infallible test of bony rickets), and as there was a great opportunity of observing the earliest stages of developing rickets, these observations are of the greatest value and interest to the practitioner. Dr. Dalyell and Dr. Mackay imply that craniotabes was the earliest sign of rickets in Vienna; and it should be remembered that the majority of their cases, on the radiographic standard, occurred at or under the age of seven months. But craniotabes—a softening of the outer ends of the occipito-parietal sutures—was often observed between three and five months. Not only was it an early sign, but its persistence indicated that the disease was progressing. On the other hand, in older infants—nine months and onwards—it might be absent and yet definite rickets might be present elsewhere. The rickety rosary was a less early sign, and seldom seen before the age of five months; and here there was a possibility of confusion with slight normal beading, and with more definite enlargement produced by scurvy; in a series of histological investigations, however, the great majority of the cases of marked rosary were rachitic. Cranial bossing was of small value in diagnosis. Enlargement of the wrists and ankles seldom occurred before the end of the first year, and radiographic diagnosis could be made long before clinical enlargement could be verified. If these characters of rickets in Vienna are true also for this country, we have in them useful guidance for the clinical diagnosis of early rickets. Under six months of age the sign would be craniotabes with or without cranial bossing; after six months there would be added a marked enlargement of the costo-chondral junctions. The period of infancy at which rickets develops is of importance, for at different ages the criteria of diagnosis will change, and rickets will manifest itself in those parts of the bony skeleton which at the time are growing most rapidly. The observations in the report on craniotabes and the rickety rosary are important, and deserve the attention of the profession in this country. They indicate that rickets may frequently affect infants at an earlier period than has hitherto been recognized; and that in this early stage it may be diagnosed clinically in the skull and thorax with reasonable probability, before radiographic evidence can be obtained of rickets in the bones of the limbs.

THE GENERAL MEDICAL COUNCIL.

THE first act of the General Medical Council when it assembled last week was, by acclamation, to re-elect Sir Donald MacAlister, K.C.B., Principal and Vice-Chancellor of the University of Glasgow, to be for the fifth term President of the Council. It was a foregone conclusion, for the ability and impartiality with which he has discharged the duties of the high office are known to all. Under his control the work is so thoroughly prepared for the Council by the Executive and other committees that the sessions are shorter than they were, so that we hear no more of what at one time threatened to be a serious financial crisis. The session of the Council lasted five days, and was mainly occupied with the consideration of disciplinary cases, but it dealt also with the important matter of certain forms of advertising and canvassing by medical men, raised by Dr. Bolam at the November session. The Executive Committee reported that it had considered the matter in consultation with the Council's legal advisers, and submitted a revised form of paragraph 5 of the existing warning notices. Dr. Bolam introduced what we believe to be a new term when he spoke of the practices to which objection was taken as "prepared publicity." Sir Jenner Verrall said that it was important that the Council should be able to deal with slight infringements of this nature, which called for warning rather than penalty, and both agreed that the revised notice met the case. Professor Harvey Littlejohn observed that it would be an advantage if the attention of final year students could be called by teachers to the Council's warning notices; he had himself taken care that students in his charge were fully acquainted with them. The President said that many other teachers already made a practice of applying for copies, and that every practitioner received a copy of the warning notices along with his certificate. Another warning notice, with regard to dangerous drugs, was accepted without discussion; both notices will be found in full in the report of the proceedings of the Council published in the SUPPLEMENT this week. By putting down a motion, which he eventually withdrew, Mr. Turner elicited some interesting information with regard to the exact meaning to be attached to the phrase sometimes used by Government departments that "regulations have been approved by the General Medical Council"; the phrase was used recently in connexion with the Dangerous Drugs Regulations, which were eventually withdrawn and modified. The General Medical Council is constitutionally a committee of the Privy Council, and it is rather surprising to learn that it has not got the right to call for advance copies of any proposed regulations or legislation affecting the medical profession. Apparently the form in which a Government department may request the advice of the Council may greatly restrict the power of the Council to give an effective opinion. Moreover, the Government department appears to claim the right to ignore advice tendered by the Council, its Executive Committee, or its President, as the case may be, and the regulations as finally issued may neither correspond to the draft submitted to the Council nor embody emendations suggested by it, although eventually the Government department concerned may claim that it has the approval of the General Medical Council. But, as the President observed, a Government department in a difficulty will use any argument. The discussion disclosed a defect in constitutional proceedings which ought to be remedied, but perhaps legislation by regulation has now fallen so much out of favour that this particular abuse of administrative power may not for the present recur. As has been said, the greater part of the time of the Council was occupied in the consideration of disciplinary cases, which, together with the decisions of the Council and the observations of its President on each, are or will be reported in the SUPPLEMENT. It will be observed that four of the eleven cases heard had to do with laxity or impropriety in certification, a duty which members of the profession cannot be too punctilious in performing.

THE WALLER MEMORIAL.

THE proposal to establish a permanent memorial to the Wallers will be welcomed by everyone who knew them. Augustus Waller was not only a physiologist of uncommon originality, among the first to blaze a path into several unexplored territories, but was also a most fascinating personality, a brilliant if erratic talker, with an enviable

faculty of making friends. His wife, who with complete self-forgetfulness ably helped in all his physiological work, possessed a gentle spirit which was the perfect complement of her husband's fiery temperament. She, too, had the faculty of making friends, and knew how to grapple them with hoops of steel. Their house in St. John's Wood, where was a large room with a table which contrived a double debt to pay, being convertible by the letting down of a counterpoised top from billiards to physiology, was always open to all physiologists, young and old, and the man or woman who went there was sure to return. Professor Sir Edward Sharpey Schafer was in the chair at a meeting held at the Royal Society of Medicine on June 1st, where the plans of the promoters of the memorial were made public. It was appropriate that he should preside, for he had watched the whole of Waller's career from a time before he began to teach physiology at the London School of Medicine for Women, and had known Mrs. Waller while she was yet a student there. Waller's great characteristic, he said, was a love of truth and hatred of humbug; his physiological work was extraordinarily original and always accurate, even when working over new ground. Mrs. Waller, a sympathetic friend and her husband's perfect helpmeet, having the keenest interest in his work, yet took her domestic place as wife and mother. It was impossible to think of one without the other, and in death they were not divided. Mrs. Waller, who had become seriously ill before her husband's death, survived him for only a few months. Professor Starling proposed a resolution to the effect that, in view of the life-long devotion to scientific research of Dr. and Mrs. Waller, and their connexion with the London School of Medicine for Women, the memorial should take the form of a research fund to be administered by the council of the school. He enumerated as the chief achievements of Waller his work on the electromotive changes of the heart, on the "characteristic" of muscle and nerve, and on the electromotive phenomena associated with psychical processes, as fundamental advances in physiology, which broke fresh ground and opened up new lines of investigation. His work would endure. It might be asked why a man who had contributed to the eternal fabric of science needed any other memorial. The answer was that those who remained desired some tangible memorial and reminder of their association with the Wallers in their great work. The motion was seconded by Miss Aldrich-Blake, Dean of the London School of Medicine for Women, who referred to Mrs. Waller's continuous interest in it, and by Miss Edgell, who had worked with Waller in the Physiological Laboratory of the University of London; she spoke particularly of Mrs. Waller's interest in education and her long period of service on the council of Bedford College. The resolution was carried unanimously. Professor W. C. Cullis and Professor J. S. Macdonald were appointed honorary secretaries, and Dr. J. A. Mellanby honorary treasurer. To him subscriptions may be sent at the Sherrington School of Physiology, St. Thomas's Hospital, S.E.1.

OCTOCENTENARY OF ST. BARTHOLOMEW'S HOSPITAL.

THE eight hundredth anniversary celebrations of the foundation of St. Bartholomew's Hospital began on Tuesday morning with a service at the Priory Church of St. Bartholomew the Great. The lesson was from Ecclesiasticus xliv, 1-15, and special thanksgivings were offered for Rahere, founder of the church and hospital, and for all who followed him in ministering to their fellow men. A special collect was adapted from the service in commemoration of founders and benefactors in the Latin Book of Common Prayer, issued in the year 1560, for use at Oxford and Cambridge, and at Eton and Winchester. This was followed by an eloquent address by the Bishop of Chester, one of the sons of Sir James Paget. The next ceremony was held at noon in the hospital quadrangle in the presence of a large gathering. After a fanfare of trumpets, Canons Regular of St. Augustine, in the vestments of their Order, walked in solemn procession round the square singing the Latin hymn in honour of their patron saint; halted before the fountain to commemorate, with praise to God, the founding of St. Bartholomew's Priory by Canons Regular of St. Augustine near that spot in 1123; and retired chanting the 67th Psalm. A herald advanced and read, in ringing tones so that all could hear, a proclamation, declaring by command of the President, the Lord Mayor, and the Treasurer and Governors, that the ceremonies to mark so unique and auspicious an occasion should forthwith begin. Three episodes in the history of the hospital were then represented with excellent effect under the direction of Mr. Robert Atkins, to the sound of fanfares and other music by the band of the Welsh Guards. The first episode showed the return of Rahere from his pilgrimage to Rome, and his meeting with Richard, Bishop of London; the second showed the presentation by Henry VIII in 1544 of a Charter to the Lord Mayor and Commonalty of the City of London restoring to the hospital the lands alienated on the dissolution of the monasteries in 1537; the third illustrated the work of the hospital to-day and its war services. The figure of Rahere was admirably represented by Mr. Harvey, and Mr. Arthur Bourchier's Henry VIII was appropriately regal and haughty. The pageant was performed under a leaden sky, but no rain fell, and the sun smiled upon the later proceedings. After attending a luncheon party at the Mansion House the Prince of Wales, President of the hospital, visited the Guildhall to receive addresses from delegates representing the Archbishop of Canterbury and Bishops of the Church of England, the Universities of Great Britain and Ireland, the Universities of the Dominions and India, Universities of the United States, and the Learned Societies of Great Britain and Ireland and of America. The senior alderman welcomed the delegates on behalf of the Lord Mayor, whose recent injury prevented his attendance. Lord Stanmore, treasurer of the Hospital, presented to His Royal Highness a commemorative gold medal, and the Prince of Wales presented commemorative medals to the treasurer, to the chairman of the Octocentenary Grand Committee, Sir John Baddeley, and to Lord Bearsted to give to the Lord Mayor. The delegates—some sixty-five in number—then in turn mounted the dais and handed their congratulatory addresses to His Royal Highness. Next, brief messages were spoken by the Bishop of Worcester on behalf of the Church, by Sir Archibald Garrod on behalf of the home universities, by Sir Walter Fletcher on behalf of the learned societies, and by two other delegates, one (Dr. Alexander Primrose, of Toronto) chosen to represent the universities of the Dominions and India, and one (Dr. William Henry Welch, of the Rockefeller Institute and the Johns Hopkins University) representing the universities of the United States. The picturesque ceremony ended with an address of acknowledgement and welcome read by the Prince of Wales. The celebrations are being continued throughout this week.

MILK PROSECUTIONS.

LAST August we had occasion (vol. ii, p. 325) to comment adversely on the advice given by the Ministry of Health in Circular 325 with regard to the conditions under which prosecutions should be instituted in cases where adulterated milk samples had been obtained by local authorities under the Sale of Food and Drugs Acts. The circular was

understood by local authorities, in most cases county and borough councils, to direct that they should not prosecute a milk vendor found to be selling adulterated milk unless after examination of several samples he was found habitually to be adulterating his milk. From the point of view of the local authority this tended to render milk sampling under the Acts practically useless, and many local authorities have felt that if this were the intention of the Acts money spent on milk sampling would be wasted. Fortunately the present Minister of Health, who is a past Lord Mayor of the city of Birmingham, has had the good sense, no doubt as a result of his municipal experience, to see the hopeless position in which the local authority would have been placed had Circular 325 been acted upon. He has accordingly withdrawn Circular 325, and gives the following decision in Circular 399, dated May 16th, 1923: "From information which he has had before him it is evident that this Circular (325) has been widely misunderstood and to some extent misrepresented, with the result that it has not produced the effect which was intended. In the circumstances he has decided to withdraw the Circular, feeling that he can rely on the responsible local authorities to administer the Sale of Food and Drugs Acts with due fairness and consideration to the various interests concerned." This decision will be welcomed by all public health administrators; it should be regarded as evidence that in this matter the professional advisers of the Ministry have been consulted, and that their advice has been acted upon. Mr. Neville Chamberlain is to be congratulated upon the course he has followed.

SPIROCHAETES AND BLACKWATER FEVER.

LETTERS have been received from Dr. J. Gordon Thomson, Director of Protozoology, London School of Tropical Medicine, who is at present in Rhodesia investigating blackwater fever, in which he mentions that he has examined for spirochaetes the blood of six patients suffering from this disease. He adopted the method of triple centrifugalization of the blood used by Blanchard and Lefrou (1922), but so far has been unable to confirm their results or to demonstrate spirochaetes of any description. Examination of specimens with dark ground illumination, however, showed numerous fine threads or filaments, varying in length and thickness and possibly derived from the blood platelets, which simulated spirochaetes very closely indeed. Dr. Thomson has also attempted to make cultures —chiefly on Noguchi's medium—of any spirochaete which might be present, but his results have been negative. Inoculation of guinea-pigs has also failed to produce evidence of the existence of a spirochaete. Again, he makes mention of the fact that relapsing fever is fairly common among the native population, and that acute infective jaundice undoubtedly occurs, so it is quite possible that either of these diseases might be superimposed on an attack of malaria or blackwater fever. So far as he has gone Dr. Thomson is inclined to the view that blackwater fever is a manifestation of chronic malaria, and is due to some obscure haemolytic phenomenon caused by repeated attacks of malignant tertian malaria. In the parts of Rhodesia where malaria does not exist there is no blackwater fever, and, conversely, in the areas where malaria is prevalent blackwater fever is common.

WATER POISONING.

DR. J. S. HALDANE, F.R.S., who is director of the Mining Research Laboratory at Birmingham, has communicated to the Royal Society a paper by Mr. K. N. Moss on some observations made in that laboratory on the effects of high temperature and muscular exertion upon colliers. They relate to the consumption of food and of oxygen, and to certain results of the profuse sweating induced. The mean daily energy value of the food consumed by the colliers investigated was 4,712 calories. Men working in hot mines consumed more food, and a larger proportion of salted food, than men working in cool mines. The oxygen consumption per minute in various kinds of work at the face by an efficient collier varied from about 1,300 c.cm. to 2,000 c.cm. In persons not acclimatized to heat the maximum amount of sweat lost per hour was about 1.4 lb., whereas in a collier accustomed to work in a hot place the maximum loss was 5½ lb. The actual loss per shift was obtained for a number of colliers. The sweat was found to contain about 0.2 per cent. of chloride, and the loss of chloride during a shift was very considerable. Men working in hot mines, at iron furnaces under certain conditions, and as stokers in ships, especially in the tropics, suffer greatly from a sensation of thirst, which appears to be in part due to a physical drying of the mucous membranes of the mouth and throat. They are therefore induced to take large quantities of water—so large as to be in excess of the real requirements of the body. They are subject to attacks of cramp, which they speak of as miners' cramp or stokers' cramp. The cramp is referred by the author and Dr. Haldane to a form of water poisoning of the muscles brought about by the combination of great loss of chloride by sweating, excessive drinking of water, and temporary paralysis of renal excretion.

HEALTH INSURANCE PROBLEMS IN AMERICA.

SINCE health insurance became a matter of State concern in Denmark, Germany, and Britain it has received much attention on the other side of the Atlantic, and in an essay lately issued[1] an American writer, Mr. Gerald Morgan, has discussed various aspects of the subject. His object is to arrive at a conclusion, or at least a judgement, as to what is best for his own country, and as an aid to this he passes in brief review what he understands to be the position in the European countries mentioned. As regards this country, however, his information is so incomplete and out of date and one-sided as to make comment needless. To Americans the essay will not give a correct representation of the position. While there is plenty of room for wide difference of opinion as to the merits and demerits of the British health insurance system, the writer, through lack of knowledge, does not give material on which his readers can form an unbiased judgement of their own. The later chapters of the book, however, are of real interest to students of health insurance. The author concludes that cash benefits should be entirely separated from medical benefits, because the contributions required for the former are actuarially calculable, while the cost of adequate medical benefit is bound to increase with advancing knowledge, so that even people above the wage-earning class cannot always be expected to be able to afford it. Cash relief, therefore, he holds, should be provided by insurance, while medical benefit should be State-aided for all concerned. He discusses two bills which have been before the legislature of the State of New York, one a Health Insurance Bill of 1920, and the other a Health Centre Bill of 1921; neither of them has yet become law. The second scheme in various respects brings to mind the interim report to Dr. Addison in 1920 by the Consultative Council on Medical and Allied Services. It is striking in respect that, as compared with the health insurance system in this country, it begins just at the opposite end, with hospitals, sanatoriums, dispensaries, laboratories, public health, nursing, periodical medical examination independently of illness, and the provision of

[1] *Public Relief of Sickness.* By Gerald Morgan. London: George Allen and Unwin, Ltd. 1923. (Crown 8vo, pp. 195. 7s. 6d. net.)

consultants and specialists. That is where it begins, and that is where it ends; it never gets down to the general practitioner, who as such seems outside of it, payment for his services being left to private arrangement between him and his patient, though the practitioner may in addition find a part-time place in the local health centre. Such centres would be established in suitable localities, and the cost would be borne by the State to the extent of about 25 to 35 per cent., and partly by the municipal authorities, while patients would contribute according to their means. Even in the United States, however, economy in public expenditure seems to have become an acute question, and, as already pointed out, the New York bill has not so far become an Act. The author considers various questions which would probably arise were the bill passed; they include the establishment of centres, the adequacy of treatment, and the relation of a centre to the patient, the doctor, and the taxpayer. The essay, in spite of its defects, is well worth perusal by those interested in the problems of medical sociology, which occupy so much attention in the present day.

ALMONER'S WORK.

THE annual report of the Samaritan Fund and the Lady Almoner's Department of St. Thomas's Hospital for 1922 contains an interesting account of the social service work of the hospital. The social service office was opened first in the casualty department, but in 1909 its work was extended to the wards with the assistance of trained workers supplied by the trustees of the Northcote Trust. The lady almoner rejoices in the "reproach" that is sometimes heard that "St. Thomas's Hospital makes a fetish of social work"; and her report certainly justifies her attitude. The work began with the appointment of an almoner to help the out-patients to carry out the recommendations of the medical staff, to arrange for convalescence, to raise funds for the urgent needs of the patient, as well as for the subsidiary purpose of directing patients ineligible for hospital treatment to suitable medical centres. As the work extended the governors placed the Samaritan Fund in the almoner's hands, so that its distribution might be based on an intimate knowledge of the patient's home circumstances. In the casualty department patients are sorted out, and many are returned to their panel doctors. Assistance, social advice, or financial help is given to convalescents. In the special departments for out-patients much work is done in supplying instruments, visiting and reporting on homes, keeping up attendances for physico-therapy, sending the district nurse to babies with ophthalmia, and so on. Work is done in connexion with a speech centre, a Northcote Trust hostel for women with venereal disease, and the tuberculosis department. Patients who have left the wards are followed up, and for this purpose the Northcote Trust office keeps a register of all cancer patients. The records of the lady almoner's office in maternity cases for the last ten years have been used in a special research for the Medical Research Council on the effects of maternal conditions and nutrition upon birth weight. From a perusal of the report the treasurer of the Samaritan Fund's pride in the thoroughness and efficiency of the lady almoner and her staff seems fully justified.

THE prizes at the London School of Medicine for Women were presented on June 1st by H.R.H. Princess Mary, Viscountess Lascelles. Miss Aldrich-Blake, Dean of the School, said, in an introductory address, that since the foundation of the school nearly fifty years ago more than 1,000 students had gone through it, of whom some 700 were at work in the United Kingdom and the rest in India, China, and the Dominions. Princess Mary subsequently took tea with the Dean and other members of the teaching staff, and afterwards the seven students who had taken the chief honours were personally presented to her.

BIRTHDAY HONOURS.

THE birthday honours list issued on June 2nd, in anticipation of the King's birthday on June 3rd, contains the list of honours the King has conferred on the recommendation of the authorities of the Navy, Army, and Air Force, of the Colonial and Foreign Offices, and of the Government of India.

K.C.B. (Military).

Major-General Owen Edward Pennefather Lloyd, V.C., C.B. (ret. pay), Colonel Commandant R.A.M.C.

C.B. (Military).

Surgeon Rear-Admiral Joseph Chambers, C.M.G.

Colonel Walter Holland Ogilvie, C.M.G., I.M.S., Assistant Director of Medical Services, Presidency and Assam District, India.

Knighthood.

Dr. Hector W. G. Mackenzie, Consulting Physician to St. Thomas's Hospital, and a member of the Board of Examiners for the I.M.S.

Professor William J. Ritchie Simpson, C.M.G., member of the Colonial Advisory Medical and Sanitary Committee.

C.M.G.

Dr. David Alexander, Director of Medical and Sanitary Services, Gold Coast Colony.

The Rev. Robert Laws, D.D., M.D., Principal of the Livingstonia Mission, Nyasaland Protectorate.

C.I.E.

Lieut.-Colonel Asher Leventon, Indian Medical Service, Superintendent, Campbell Medical School and Hospital, Bengal.

Lieut.-Colonel Thomas Hunter, Indian Medical Service, Civil Surgeon, Lucknow, United Provinces.

Lieut.-Colonel Robert McCarrison, Indian Medical Service, Medical Research Department, India.

Major David Patrick Johnstone, O.B.E., Surgeon to his Excellency the Governor of Madras.

M.V.O. (Fourth Class).

Henry Linnington Martyn, F.R.C.S.

Frederic Jeune Willans, M.R.C.S.

O.B.E. (Military).

Major and Brevet Lieut.-Colonel Ralph Bignell Ainsworth, D.S.O., R.A.M.C.

Lieut.-Colonel Gerard Irvine Davys, M.D., I.M.S.

Flight Lieutenant Christopher Thomas O'Neill, M.B., R.A.F.

O.B.E. (Civil).

Captain Thomas John Hallinan, R.A.M.C., M.O.H. Basra.

Eldon Harvey, Medical Superintendent of the Lunatic Asylum and Health Officer, Western District, Bermuda.

Dr. Benjamin William Quartey-Papafio, Member of the Legislative Council of the Gold Coast Colony and formerly Assistant Colonial Surgeon.

M.B.E.

Captain Antonelli Francisco Bartholomeu Saldanha, I.M.S.

Sardar Bahadur Diwan Singh Duggal, Civil Surgeon, Punjab.

Dr. Agnes Henderson (Central Provinces).

THE ETIOLOGY AND PREVENTION OF RICKETS.

OBSERVATIONS IN VIENNA BY THE BRITISH MISSION.

Special Report Series, No. 77,[1] of the Medical Research Council, just published, gives the final and complete account of the investigations on rickets in Vienna, carried out from 1919 to 1922 by Dr. Harriette Chick and her colleagues under the auspices of a special joint committee of the Medical Research Council and the Lister Institute. It is, perhaps, the most complete study of human rickets from the side of prophylaxis that has ever been undertaken; and it is in the addition to our knowledge of those conditions of diet and environment that will prevent rickets that the greatest value of the report lies. But it also gives a careful description of the early clinical signs of rickets, controlled by radiographs of the bones, which constitutes a really important contribution to the diagnosis of the disease.

The appearance of this scientific clinical study of rickets is a counterpoise to the great mass of work on experimental rickets in animals in recent years, and may, perhaps, settle some points of controversy that have emerged from these laboratory investigations. Indeed, the first object of the Vienna inquiry was to investigate the influence of diet in the production of rickets, and especially with regard to the fat-soluble antirachitic vitamin of Mellanby; and only later was the scope of the inquiry broadened by the consideration

[1] Medical Research Council. Special Report Series, No. 77. *Studies of Rickets in Vienna, 1919-1922.* Report to the Accessory Food Factors Committee of the Medical Research Council and the Lister Institute. By Harriette Chick, D.Sc.; Elsie J. Dalyell, M.B.; E. Margaret Hume; Helen M. M. Mackay, M.D., M.R.C.P. (Beit Memorial Fellow); H. Henderson Smith, R.R.C.; Hans Wimberger, M.D.; and M. Tarsi, M.D. London: H.M. Stationery Office. 1923. (230 pages; 12 plates, and numerous charts and figures. 7s. 6d. net.)

of the various factors of environment and especially of sunlight.

Rickets was specially rife in Vienna after the privations of the war. The investigators were fortunate in being able to work in the University Kinderklinik under Professor Pirquet, where eventually sixty cots were allotted to them, in two separate hospitals, but under the same conditions of good hygiene and an altogether exceptional system of diet control. The fully organized investigation extended from November, 1920, to July, 1922; it consisted of a prolonged observation of some seventy young infants (the period of observation in most cases varied from six months to a year). They were the babies of poverty and the slums, and on admission the majority were in poor condition. They were all bottle-fed, and on one of two diets. Diet I consisted of the fresh undiluted milk of stall-fed cows, sterilized, and supplemented by large amounts of cane sugar; after 5 months of age, cooked starch was added as semolina and potato. Diet II was a full-cream dried milk, reconstituted by the addition of water, sometimes supplemented for young infants by addition of sugar, and at 6 months by addition of semolina, and at 9 months by potato. It was expected that this dried and tinned milk, obtained from grass-fed cows, would be richer in fat-soluble vitamin than Diet I; but actual experiment with rats showed that it had a low value in fat-soluble A, and in this respect was no better than the winter milk of the Vienna cows. Every infant on Diet II received also a daily ration of cod-liver oil, up to one and a half drachms daily of the pure oil, given in emulsion; so that Diet II, so supplemented, was notably richer in fat-soluble A than Diet I. Apart from their content in fat-soluble vitamins, the two diets differed in the proportions of organic constituents, expressed as percentages of the total calories, as follows:

Caloric Percentage.

	Protein.	Fat.	Carbohydrate.
Diet I	13	28	59
Diet II	20	45	35

The high carbohydrate content of Diet I and its lower content of protein and especially of fat will be noted. The calorie value of both diets was high; in both this exceeded the standards of Heubner and Holt; that of Diet I was 5 to 10 per cent. higher than Diet II, this being due to the heavy proportion of cane sugar in it. These diets were given to equal groups of infants, 34 on Diet I and 34 on Diet II, between November, 1920, and June, 1922; the two groups mingled indiscriminately in the wards, and enjoyed the same excellent hygienic conditions. If anything, the general health of the group on Diet II was better, and their rate of growth approximated more closely to the standard; it suffered less from respiratory troubles in the winter, but in summer was not less immune from gastro-intestinal disturbances than the Diet I group. But in both groups the standard of general health remained fairly good throughout. Freedom from rickets on admission was established both by clinical signs and radiographical diagnosis. Development of rickets took place as follows. Where the standard of diagnosis was the radiograph, no case occurred in Group II (that is, on Diet II); while seventeen cases occurred in Group I (Table 2, p. 43). Further, all these cases of rickets occurred in the winter season, between December 30th and May 2nd. The age in these positive cases was unusually young; of the seventeen, nine were under 6 months, and twelve under 7 months when diagnosed by *x* rays (p. 45). Thus, under similar and good conditions of hygiene in well lit and airy hospital wards, a marked tendency to rickets was shown by children on a special diet, but only during the winter season; the conditions of life in summer, the free exposure to sun and open air, neutralized the rachitic influence of diet.

It is important to add that when clinical standards of diagnosis—cranio-tabes, rib-beading, cranial bossing—were accepted, though radiographs were negative, there were additional cases. In summer ten such cases of clinical rickets occurred—five on Diet I, and five on Diet II; and two in winter on Diet I (p. 47). It is regrettable that detailed records of some of these cases occurring on Diet II —that is, on cod-liver oil—have not been included in the report. This question of the clinical stigmata of early rickets is of great importance to the practitioner; and the careful and prolonged observations on cranio-tabes and the rickety rosary in young infants are not the least valuable part of the report.

Miss Dalyell and Miss Mackay lay special emphasis on cranio-tabes as the earliest sign of developing rickets, at least in infants under 6 months (p. 133); while enlargement of the costo-chondral junctions, though occurring later (between 5 and 6 months), was also of great value, though confusion might here be caused by physiological or by scorbutic enlargement. The records given show that in all cases diagnosed by *x* rays there were also present one or more of the clinical stigmata in the skull and thorax. It may be stated also that *x*-ray examinations of the ribs could not be made owing to technical difficulties; and one case is given where nine successive radiographs of the limbs failed to detect rickets, and yet at autopsy histological evidence of rickets at the costo-chondral junctions confirmed the clinical diagnosis of a rickety rosary (p. 48). In view of these facts on the clinical stigmata of rickets set forth in the report, the conclusion on page 66 that "in summer infants on both types of diet were protected from rickets" would seem to require some qualification.

The remainder of this absorbing report must be described more briefly. Treatment of rickets was studied in fifty-three cases, some admitted with the disease, some developing it on Diet I while in hospital. The standard of cure was radiographic evidence. Diet II (containing cod-liver oil) was curative in winter; Diet I failed to cure. Spontaneous cure was observed in spring and summer when the babies were much out of doors, on either diet. In winter and spring infants on Diet I were also cured by cod-liver oil, or by exposure to sunlight, or by the mercury vapour quartz lamp (p. 85). Treatment by sunlight (out of doors) was on the whole more efficacious than the mercury vapour lamp or cod-lived oil to open-air treatment accelerated cure (p. 84). health; but there was an impression that the addition of cod-liver oil to open air treatment accelerated cure (p. 84). It is important to note that excellent conditions of hospital hygiene in winter, with a diet of high calorie value (Diet I), did not effect a cure of rickets.

A portion of the report (Part III, No. 2, p. 115) deals with observations on rickets at the Landes Zentral-Kinderheim, a large institution for nursing mothers and infants. Here a study was made of a large number of breast-fed infants; but unfortunately radiographic diagnosis was not available, and where artificial feeding supplemented breast milk, this could not be so strictly controlled. Hygienic conditions also were less satisfactory. Nevertheless, the results were important, and on the whole confirmed those at the University Kinderklinik. In winter rickets was common, even in babies entirely fed on human milk; in summer, the disease was "not uncommon," but in a milder form. The use of cod-liver oil "greatly reduced the incidence of the disease in winter, but even in summer did not entirely prevent its appearance" (p. 128). "The imperfect protection afforded by cod-liver oil under less favourable dietetic and hygienic conditions" is admitted (p. 197); and in this connexion the development of slight cases of rickets at the Kinderklinik in children receiving cod-liver oil and in summer may be recalled (p. 47).

Part IV deals with laboratory tests on various milks in respect of their content of fat-soluble A vitamin, as tested by growth experiments on rats and guinea-pigs. These experiments, carried out by Miss Hume, though of rather negative character, were interesting and important (pp. 151, 152). They showed that the dried milk used in Diet II (at the time of testing it had been in tin for about two years) had a low vitamin A value—no higher than that of the average Vienna stall-fed dairy cows, either in winter or summer; also that the milk of special stall-fed cows on a controlled diet, both with and without green-stuff, was of low vitamin A value; and that the exposure of a stall-fed cow daily to sunlight did not increase the vitamin A content of the milk. Human milks obtained from the Landes Zentral-Kinderheim were also of low vitamin A value; the addition of butter and margarine to the mothers' diet produced no effect, but cod-liver oil after a considerable time produced definite improvement in some experiments. Suggestive results were obtained on rats fed on defective diets by radiations from the mercury vapour quartz lamp.

In conclusion, unstinted praise must be given to Dr. Wimberger for his account of the rachitic changes in the long bones, as revealed by *x* rays; and for the beautiful radiographs of rachitic processes, developing and healing. The successful reproduction of these delicate photographs is a real triumph. As to the other contributors who in association have furnished the body of the report, sincere congratulations and thanks are due. The best tribute to their work will be the honourable place which the report will certainly take in the literature of rickets. The generous hospitality of Professor Pirquet also will not be forgotten.

VOLUNTARY HOSPITALS ASSOCIATION.

THE annual conference of the British Hospitals Association was held in Sheffield last week, when a number of subjects relating to the finances and administration of hospitals were discussed.

THE FUTURE OF VOLUNTARY HOSPITALS.

A paper on this subject was read by Mr. H. J. WARING, surgeon to St. Bartholomew's Hospital, in which, after dealing with the origin and growth of voluntary hospitals, he urged that they should be expanded so as to provide satisfactory hospital treatment for those who could pay for what they needed but could not get it elsewhere. After noting the general practice of requiring contributions from patients he said:

> The result of these contributions of patients to the hospital authorities and the payment by public bodies for medical services has changed the outlook as regards the medical staff. In the past, the medical staff of a voluntary hospital has given its services either entirely gratuitously or, in a few instances, each member of the staff has received a small honorarium for out-of-pocket expenses. It has always been understood, however, by the honorary medical staff of a voluntary hospital that the services given in this honorary capacity were to be for the necessitous poor, and not for patients for whom or from whom the hospital has received monetary consideration for treatment. Some hospitals in this way receive considerable sums of money. In my own hospital —St. Bartholomew's—last year the amount received in this way was nearly £30,000, about one-fifth of the annual hospital expenditure. On this account the position of the medical staff and finance ought to be reconsidered.
>
> In the past resident members of the hospital staff and also junior members of the visiting staff have not been paid adequately for their services . . . A newly qualified medical man has already spent in all probability five or six years in getting his qualification, and, having obtained it, it seems only right and proper that he should be properly paid for the services he renders to the hospital. The same statement holds good as regards the junior members of the visiting staff. In many cases they give a large amount of their time and energy to the investigation and treatment of hospital patients, often at a pecuniary loss to themselves. In my opinion, all junior members of a visiting staff of a general hospital ought to receive adequate payment for their services.

VOLUNTARY HOSPITAL FINANCE.

Sir NAPIER BURNETT read a paper on voluntary hospital finance, in which he dealt with two sources of income—contributory schemes and insurance for middle-class patients within certain income limits. He quoted the definition of a voluntary hospital adopted by the Voluntary Hospital Commission—namely:

> An institution managed by a responsible committee and partly or mainly supported from voluntary sources, the object of which is to provide medical and surgical treatment of a curative character.

It was, he thought, clear from this definition that the Commission desired to retain for hospitals government by a responsible committee and voluntary sources of support. Moreover, in his opinion, "any alteration in the character of the sources of support must in the long run tend towards alteration in the form of government."

Contributory Schemes.

Sir Napier Burnett gave an analysis of the answers he had received from 105 hospitals which derive income from contributory schemes, and hoped thereby to help committees of management when considering the tendencies of this method of obtaining income. In 41 of the 105 hospitals contributory schemes had existed for over thirty years. "If payments by patients or potential patients are inimical to the voluntary system, a destructive process has (he said) been in progress at some hospitals for over fifty years." In many of these hospitals the organization of the contributory scheme is undertaken by the hospital; in others by the local Hospital Saturday Fund, or by an outside committee. The rate of payment varies from a farthing to threepence a week. He had assumed that the aim was to raise an amount of money sufficient to cover the cost of treating contributory patients; if profit were aimed at the vexed question of the remuneration of the honorary staff would arise. Unfortunately few hospital authorities could give the number of the contributory patients treated, and fewer still even an approximate number of the contributors, so that it was difficult to estimate each hospital's liability. Sir Napier Burnett expressed the belief that doctors will continue to treat the indigent without payment; they will, he assumed, continue to treat gratuitously members of the class who had formed the great bulk of hospital patients for the last fifty years, most of whom now form the contributory class; but it could not, he said, be assumed that the medical profession will agree to any extension of free service. Detailed registration of patients by each hospital was, therefore, of the utmost importance, in order to estimate liability and to avoid friction in the future.

From the answers to his questions it appeared that in 74 of the 105 hospitals periodic payment entitles the contributor to free hospital treatment, in many cases covering also his dependants. Sir Napier Burnett suggested that a central body was needed to collect data, supply information, and bring the hospitals with contributory schemes into line. The fact that 70 of the hospitals imposed no limitation to the income of the contributors, and that collecting and contributing were on a varying basis or no basis at all, showed the need for a better understanding of the hospital situation. Of the 105 hospitals, 79 asked payment from patients who were not members of the contributory scheme; 44 hospitals did not attempt to correlate the support received with the district or area or contributing firm for which work was done.

Sir Napier Burnett summarized the inducements to join a contributory scheme as follows:

1. To help less fortunate comrades when in need of treatment.
2. To obtain treatment for the contributor and his family.
3. To enable the contributor to share in the management of the hospital.

Great care, he thought, should be exercised in according to contributors a share in management lest the scheme might result in handing over to one class in the community the entire control of the hospital. In order to maintain the voluntary system emphasis should be laid chiefly on inducement 1. In some newer schemes there was a tendency to pay too little regard to the older rules that only those suffering from complaints suitable for hospital treatment should be admitted, and then only if there was room. The hospital liability should be clear from the outset. Some schemes suffered from a failure to fix an income limit for contributors.

There were, he said, arguments in favour of each large hospital running its own scheme, but he thought this was less desirable with small hospitals, as the work required an organized staff and considerable expenditure. There was a lack of uniformity in the accounts. Sometimes the sums received from regular weekly contributions, from grants by employers, from social entertainments, and from church and chapel collections, were included under the heading "Contributory Scheme"; in other cases the money raised by two or three of the methods was added to "Donations."

Sir Napier Burnett concluded this part of his address by stating that a check upon the bona fides of the contributor was essential, and that apparently it would be necessary to return to some form of "letter" system.

An Insurance Scheme for Hospital Treatment.

In the second portion of his address he outlined a scheme of insurance for hospital treatment for middle-class patients with incomes between £250 and £600 or £700 per annum. He proposed a premium of £2 a year. The cost of maintenance of all the insured patients in the hospital would be the first charge on the fund formed from these premiums. The second charge would be the remuneration of the medical staff for its services, an agreed percentage being paid into a medical staff fund. The balance, after paying these two charges, would represent the real insurance quota, or so-called profit of the

scheme. This should be utilized in the provision of increased accommodation and facilities for the treatment of middle-class patients. The amount of extra accommodation required for these patients would not be very large, and would be provided from the surplus funds as the scheme developed. He did not seem quite clear about the machinery required to run the scheme. He discussed the suggestion that some of the recognized insurance companies might provide the machinery of collection, but thought the company would seek to absorb the surplus funds as remuneration for its work. He hinted that the requisite machinery might be provided by the existing contributory scheme organization. Without further explanation he passed on to the advantages of his scheme—namely:

1. That a deserving section of the community would obtain the use of the equipment and facilities of the modern voluntary hospital.
2. That a fresh avenue of finance would be opened up.
3. That the hospital medical staff would obtain payment.

Some Comments.

In confining his remarks to the income side of voluntary hospital finance, Sir Napier Burnett has dealt with several controversial matters which are of interest to the medical profession. For example, there is the demand by contributors for representation on the board of management of the hospital. Sir Napier Burnett thinks that the demand can be minimized by emphasizing the first of his inducements to contribute—the assistance given to comrades in need of treatment. We are not sure that this will be effective, and we would have liked information about hospitals in places where contributors have already obtained considerable representation on hospital committees. Secondly, Sir Napier Burnett seems unaware of the proposals contained in the hospital policy of the British Medical Association. He stated that:

"Broadly the position of the medical profession with regard to hospitals is that: (*a*) they will treat without payment the indigent; (*b*) it may be assumed that they will continue to treat free those who have formed the great bulk of hospital patients for the last fifty years, and of whom the majority form the present contributory class."

This does not seem in accord with the opinion of the Council of the Association that:

"all payments made for hospital benefit (other than . . .) are in fact payments towards all the services of the hospital, whether medical or ancillary, and therefore a percentage of such payments should be passed" to a staff fund.

Again, Sir Napier Burnett predicts that "some return to the 'letter' system is inevitable." It would be interesting to know what kind of letter system he foresees. These and several other points are, to use Sir Napier Burnett's expression, slurred. Doubtless this was inevitable in the time allowed for his address.

The subject of the policy the profession should adopt with regard to voluntary hospitals will be discussed at the Representative Meeting of the British Medical Association at Portsmouth next month in connexion with the paragraphs in the Annual Report of the Council (SUPPLEMENT, April 28th, p. 143) and the numerous notices of motion contained in the provisional agenda published in the SUPPLEMENT of May 19th (pp. 199-200).

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

Mental Treatment Bill.

THE Mental Treatment Bill, introduced on behalf of the Government by Lord Onslow, was taken in Committee in the House of Lords on May 30th. The first clause, to enable a local authority to co-opt members on a visiting committee, providing that the number of persons so appointed should not exceed one-third of the committee, was approved with a drafting amendment.

In Clause 2, for extension of powers of visiting committees, Lord Onslow proposed a change in the subsection under which it was laid down that the visiting committee might undertake research in relation to mental disorder and its treatment subject to the approval of the Board of Control. It had been pointed out that this might be impracticable, and the reference to the Board of Control was therefore omitted.

In Clause 4, touching the temporary treatment of mental disorder without certification, Lord Phillimore moved to define a "minor" as "under sixteen years of age," his point being that consent in respect of persons above that age should rest with the persons themselves. Lord Onslow said the Government would not be adverse from accepting the principle of the amendment, but felt that 16 was a rather early age at which to give this responsibility, especially in view of the possible state of health of the person to benefit. He suggested that 18 should be substituted and that the amendment should be withdrawn and considered again before report stage.

In Clause 5, relating to the discharge of persons detained in institutions under the measure, it is laid down that any person may at any time leave the institution upon giving the medical superintendent forty-eight hours' notice of intention so to do. Earl Russell moved to leave out "forty-eight hours" and to insert "three days." He said that if such a notice were given, say on Saturday at about midday, it might be impossible for the authorities to communicate with the friends of the patient, so that they should be ready to receive him as he should be received when discharged from actual care. The reason of the short period was doubtless to preserve the liberty of the subject, but that would not be seriously infringed by the change from two days to three, and as a matter of administrative convenience it appeared almost necessary. The Earl of Onslow said that at first he was very reluctant to accept this amendment, not because he did not admit the force of the argument, but that he did not wish it to be thought that it was desired through this bill in any way to restrict the liberty of a patient entering into these institutions in so far as it could be preserved with due regard to administrative convenience. But he had been much impressed by what Earl Russell had said, especially in regard to week-ends. He was therefore prepared to accept "seventy-two hours" instead of "forty-eight hours" as an amendment. This was agreed to.

On Clause 8 the Earl of Onslow moved an amendment to ensure that the Corporation of London should preserve its jurisdiction as a separate authority, and afterwards proposed a new clause to set forth that asylums provided by any public authority in England or Wales for lunatics or other persons of unsound mind should hereafter be called mental hospitals, and for reference in any public or local act or in any order, regulation, or other document issued the change should accordingly be made. The new clause was a small matter, but it introduced a new principle into the question of mental deficiency. Hitherto mental institutions had been described as asylums and the word had been associated with mental deficiency, and perhaps had contributed to the view that it was less a disease than an irremediable affliction. He had met the representatives of the nurses in mental institutions, who were anxious that this new nomenclature should be introduced into the statutes. Many alienists, and the Board of Control also, were anxious to adopt the title of mental hospital instead of asylum. The Ministry wished to emphasize the fact that mental deficiency was a disease like other diseases, and that institutions in which it was treated, and he hoped cured, were hospitals in the same way as other hospitals for bodily disease. Therefore he thought that if the title of these asylums were assimilated with the title usually associated with the hospitals for the cure of bodily disease popular misapprehensions might be corrected.

On the schedule Earl Onslow moved an amendment in the terms of statement to be annexed to a recommendation for treatment. The form as set forth in the bill began, "I am personally acquainted with, but am not related to, the above named XY." Lord Onslow proposed to substitute "The above named XY is personally known to me but I am not related to him." Thus a justice of the peace would not be prevented from giving a certificate through not being able to say he had known that patient for some time. The amendment was agreed to.

Education Estimates.

Presenting the Education Estimates, Mr. Edward Wood, on May 31st, referred to the grants for the higher education of ex-service men—a charge which has now ceased. Its results, he said, ought to have more than satisfied the keenest hope of those responsible. Out of all the entrants under that scheme to Oxford and Cambridge no fewer than 25 per cent. secured first-class honours, and in one particular college at Oxford, out of about fifty students, no fewer than six had been fortunate enough to secure Fellowships at other colleges. Two years ago the scheme was costing rather more than £2,000,000; last year £1,000,000; this year £300,000; and he was advised that about £100,000 spread over two years would wind up the last awards.

Mr. Wood said that the value of the school medical service was being increasingly realized by all concerned—the taxpayers, the ratepayers, the parents, the teachers, and the authorities. The total cost for the results obtained was not excessive. It worked out at something like 4s. 4d. a child in average attendance. In the opinion of those who had opportunities of judging, the prolonged trade depression had not had an adverse effect on the physique of the children. He could quote the opinion of more than one medical officer. For example, at Hull the school medical officer reported that in spite of the trade depression children were taller and heavier in the several age groups, and fewer children were reported by the teachers as mentally backward than in any year since the armistice. For the blind, the deaf, the physically and mentally defective among children of school age, provision could be made only through special schools. There were a large number of children for whom, at the moment, the Board was making no provision for any special schools. This was because the existing provision was so expensive. It was only by reducing the cost of these special schools to as low a figure as was compatible with efficiency that a substantial inroad could be made into the great blocks of children at present denied the benefits

to which they were entitled. With that object he had directed a review to be made to see whether the cost could be slightly lessened. In one respect it was in his power to bring some measure of assistance to areas financially hard pressed. In view of general economies which had been effected the Board proposed in the present year to extend the areas so helped.

Mr. Herbert Fisher (ex-Minister of Education) said that the presence of a large number of defective children in the elementary schools rendered it impossible for the education in those schools to be effective. As something like 40 per cent. of the mentally defective children in London schools were so trained as to be able to earn either the whole or a part of their living, he could not admit the proposition put forward in some quarters that the expenditure was unproductive. But only a very small portion of the field was covered. At the present moment 15,128 children were being educated in the special schools, day and residential, for the mentally defective. The total number of such children in England and Wales was 31,000. That meant rather less than half the number were being educated. If they could not be educated they should be handed over to the Board of Control.

Ministry of Pensions Estimates.

Major Tryon, on June 6th, presented the estimate of the Ministry of Pensions for the current financial year. The vote sought was for £73,655,246, as compared with an actual expenditure of £82,000,000 for the past year—a reduction of £8,344,754. The cost of administration had been brought down £2,000,000 a year for the last two years. This was attained by reduction in the numbers of the staffs and in salaries and bonuses in accordance with the fall in the cost of living. Pensions and allowances accounted for £65,533,000, divided as follows: for disabled officers and men, including allowances during treatment, £35,833,000; for widows of officers and men and orphan children £21,350,000; for dependants, £8,350,000. Causes of the decrease were the deaths of pensioners or their wives and children, the advance of children beyond the pensionable age, and the remarriages of widows. Two factors of increase were new claims, numbering 45,000 in 1922, as compared with 81,000 in the previous year, and larger pensions awarded by medical boards to pensioners whose condition had got worse. Major Tryon again touched on the charge made that secret instructions had been issued to medical boards to cut down pensions. He pointed out that this had been investigated by a committee, including ex-service men, who had unanimously found that the story was untrue; 95 per cent. of the doctors on medical boards were ex-service men. The average change in assessment was becoming less and less. In 1919 there was a net reduction of 0.8 per cent.; last year the net reduction was 3.9 per cent. The change was occurring mostly among the men with lighter disabilities. It was the result of medical and surgical skill, and ex-service men owed much to the medical profession in these respects. The Minister announced concessions in respect of the seven years' limit on widows' claims. The keystone of policy for the future should be stabilization and security for the pensioner.

Mr. Macpherson (ex-Minister of Pensions) observed that during the past three years the State had spent no less than £58,000,000 on medical treatment. He believed the boards were doing their work well; but it was said that some were wrong in their diagnosis and rough in their treatment of pensioners. The Ministry should make immediate and effective investigation into complaints.

Mr. Pielou, Unionist member for Stourbridge, who spoke standing by the aid of crutches, said that the Minister having assured them that pensions should be based on disability and not on earning capacity, he wanted to know why medical boards still asked whether a man was working.

After some further discussion, Captain Craig (Parliamentary Secretary to the Ministry) stated that the estimate of the cost of medical services for the year 1923-24 was £5,083,000, of which £3,797,000 represented the estimated cost of medical treatment and £1,286,000 represented boarding and administration. There would be a reduction this year of £1,502,000. On June 30th, 1920, the Ministry had 140,000 under treatment. In 1921 the number had risen to 155 000. In 1922 it was 110,000, and on March 31st of this year it was 80,000. The average cost per patient per day now was estimated at 8s. as compared with 8s. 5d. for the year 1922-23 and 9s. 7d. for the year 1921-22. The number of beds available was 8,000. Up and down the country there were 150 clinics and the Ministry had 37 hospitals devoted to various diseases. He referred to the achievements at Sidcup in dealing with cases of facial injury. He mentioned also that separate accommodation for mental cases was being provided by an institution lately established for the purpose in the west country. Already between 50 and 100 patients were accommodated there, and others were to be received elsewhere.

Insurance Medical Service.

In reply to Sir Kingsley Wood and Mr. Gilbert, on May 30th, Mr. Chamberlain said that a conference had been held with the Insurance Acts Committee of the British Medical Association to consider certain modifications in the terms of service of insurance practitioners, but no discussion has yet taken place with regard to the rate of remuneration after the expiry of the present payment, which fixed the rate at 9s. 6d. exclusive of payments in respect of drugs and mileage to rural practitioners. The improvement of the service had been a subject of consideration. Mr. Grundy asked whether it would be made a condition that similar treatment would be meted out to the panel patients as was given to private patients, and that the queue that had to wait outside the surgeries should be accommodated with shelter. Mr. Chamberlain replied he thought that would be one of the terms of service under consideration.

Dr. Watts asked, on May 31st, whether the Minister of Health was aware that under their present arrangements panel doctors were compelled to keep records of their attendances and of the illnesses of their patients, which involved a great amount of clerical work and took up much time which might be occupied in examining their cases; and whether in framing the new terms of service the Minister would no longer require these records. Lord E. Percy said the Minister could not accept the suggestion that the keeping of the prescribed simple form of record need interfere in any way with the proper examination of patients, and he was not prepared to consent to the abolition of record cards.

In reply to another question, Mr. Chamberlain said that the scale of fees paid to chemists for dispensing insurance prescriptions would expire at the end of April next, and negotiations for its revision had not yet begun.

Lord Eustace Percy, on June 4th, said, on inquiry by Mr. Snowden, that the right to medical attendance was not affected by the previous neglect of an insured person to choose a doctor. Insured persons not infrequently put off selecting a doctor until they became ill, but they had a right to treatment immediately they were in need of it. The panel practitioners, therefore, were collectively at risk in respect of all insured persons entitled to medical benefit. The actual number of unassigned persons, which could not be precisely calculated, was roughly 700,000, but the proportion of those who did not avail themselves of the right to treatment when they needed it was relatively small and a diminishing number. The Minister of Health had no information as to the distribution of unassigned persons amongst different societies.

The Deaths Registration and Burials Bill, introduced by Dr. Salter on May 29th, was printed and issued on June 5th. It lays down that information of the death of any person is to be given to the registrar within two days instead of five as at present, and it must be stated whether or not such person has been attended in his last illness by a medical practitioner. A practitioner shall not be deemed to have been in attendance unless he has personally attended the deceased on at least two occasions, one such occasion to have been within eight days of the death. Where no practitioner has been in attendance the registrar is to give notice to the public certifier of deaths (an office to be created) and the latter shall, subject to the provisions of the Act, send to the registrar a proper certificate of death. A coroner holding an inquest shall, unless satisfied that some other practitioner will be present, require the attendance of the public certifier of deaths. The board of guardians of every Poor Law union is to appoint a public certifier of deaths for each subdistrict in the union. Only a registered practitioner may be appointed. There are a number of other provisions in the bill—touching the appointment and duties of public certifiers of death, conditions of burial, and forms of certificate. The measure has no prospect of passage this session, unless it were taken up by the Government.

Cancer Research.—Lord E. Percy stated, on June 4th, that financial assistance was at present given from public funds to cancer research through the Medical Research Council, which, in the last financial year, expended a sum of approximately £5,000 for this purpose, in addition to further large sums assigned to the support of other investigations not specifically directed towards the problem of cancer, but which might nevertheless provide the desired clue. The Council held on behalf of the Government a valuable stock of radium salt, of which fractions were in use for cancer research work at eleven different universities or hospitals in Great Britain and Ireland under co-ordinated schemes; and a special departmental committee was appointed by the Minister of Health in January last to survey the whole question and consider how the medical and administrative resources of the Ministry could best be utilized in the campaign against cancer. The question of further financial and expert aid would be considered from time to time as experience might show it could usefully be given.

Pensions.—The Minister for Pensions has stated (1) that there are only seven men from Scotland in the neurological institution at Ewell, and it would not be practicable to start a fresh institution for them in Scotland; (2) that the number of men on home treatment without allowances could not be stated, as home treatment was ordinarily obtained by a man from his panel doctor without the intervention of the Ministry; (3) that the Ministry is considering the propriety of acquiring from the disposals department the hospital at present empty at Gretna; (4) that a recent instruction from the medical branch was intended to secure in cases of alleged aggravation difficult to decide that an award under 20 per cent. should not be made without, where thought necessary, obtaining specialist advice as to the probable future of the case; (5) that members of the pensions appeal tribunals were for the most part whole-time doctors receiving yearly salaries—chairman £700, medical members £700, service members £250. Persons employed on a temporary basis were paid at the rate of three guineas a day in the case of chairman and medical members, and one guinea a day in the case of service members.

Vaccination and Small-pox.—At the instance of Mr. T. Williams, on May 30th, Mr. Chamberlain stated that the proportion of cases of small-pox in persons who had been vaccinated at some time in their life was 31.3 per cent. in 1921, 28.6 per cent. in 1922, and

19.5 per cent. in the first three months of 1923. The figures for the last two periods were subject to revision, but they tended to show that the bulk of the cases occurred in persons who had been vaccinated from forty to sixty years previously. The number of deaths attributed to vaccination, or to some complication following vaccination in the three periods, were 8, 7, and 5 respectively. No deaths had so far been registered this year as due to small-pox.

Government Grants for Tuberculosis.—Mr. Chamberlain stated, on May 30th, that the total amount paid from the Exchequer during the year ended March 31st last in respect of the tuberculosis scheme in England and Wales, including capital grant in aid of sanatoriums, was £1,985,042; the gross expenditure of local authorities in England and of the Welsh National Memorial Association during that year was estimated to amount to £2,945,155, exclusive of capital expenditure.

Scarlet Fever and Milk.—Captain Elliot informed Mr. Shinwell, on May 30th, that the Scottish Board of Health had obtained a report from the county medical officer regarding the outbreak of scarlet fever and other infectious diseases at Broxburn, West Lothian, and were making further inquiries. The number of cases was large. The outbreak of scarlet fever has been definitely associated with a milk supply which was sold over a wide area.

Consumption of Methylated Spirits.—Mr. Bridgeman informed Mr. Rhys Davies, on May 31st, that the number of cases in England and Wales in the year 1922 in which the condition of the person convicted of drunkenness was reported to have been due to drinking methylated spirits was 516 (250 males and 266 females). The figures were higher than similar figures for the previous two years. Statistics had been collected for only three years, and some part of the increase might be due to improvement in reporting. The denaturing of alcohol used for industrial purposes had always been considered, but extreme difficulty seemed to have been found in making this spirit unpalatable.

England and Wales.

KING EDWARD'S HOSPITAL FUND.

THE annual meeting of the President and General Council of King Edward's Hospital Fund for London was held on June 4th, with H.R.H. the Prince of Wales in the chair. According to the annual report for 1922, which was adopted unanimously, the total receipts for the year were £1,351,342, of which £250,000 was received from the Hospital of London Combined Appeal on account, £581,353 from the estate of the late Lord Mountstephen, £257,692 from the estate of the late Sir Thomas Sutherland, £73,720 from other legacies, £24,567 from gifts to capital, and £164,009 from general receipts. The total amount distributed to hospitals during 1922, including the first and second instalments of the special distribution from the Combined Appeal, was £470,000. Since the foundation of the fund a total net amount of over £4,286,000 has been distributed. The year under review has been exceptional owing to the large legacies received, the income from the munificent bequests by Lord Mountstephen and Sir Thomas Sutherland cannot fail to assist the fund greatly in its efforts to secure a permanent improvement in the financial position of the hospitals. During the year the amount spent on the administration of the fund was £8,607, or 15s. 8d. per £100 of the total received (apart from the Combined Appeal), as compared with £2 11s. 8d. per £100 in the previous year. Sir Alan Anderson, chairman of the Revenue Committee, presented the final report of the committee on the Hospitals of London Combined Appeal, which showed that the total receipts amounted to £481,639, and the total amount distributed to £413,214. Sir Cooper Perry, chairman of the Distribution Committee, presented its report on the final distribution of the proceeds of the Combined Appeal, with the list of suggested grants to hospitals, which the meeting approved; 120 hospitals in London and greater London participated in the grants. A report was presented from the Management Committee on the subject of hospital accommodation for accident cases, and it was recommended that a special committee should inquire and report on the methods at present employed for ascertaining where bed accommodation was available in hospitals in the metropolitan and neighbouring areas for accidents requiring admission, and on the proposal that daily reports of vacant beds should be supplied to the police and ambulance authorities. The Prince of Wales remarked on the success of the Combined Appeal, which was launched in a period of high taxation and severe trade depression. The sum of £500,000 had been set up as a sort of outside figure, and he did not think that many people expected that the total actually raised would come to within £20,000 of that sum. The appeal succeeded, he said, first, because it had a good cause; secondly, because it had a good organization, and, thirdly, because this organization had a good personnel; he mentioned particularly the names of Sir Alan Anderson, chairman of the Organization Committee, and Sir George Lawson Johnston, chairman of the Executive Committee. In regard to the future, the hospitals were gradually succeeding in closing the annual gap between income and expenditure; the net aggregate deficit for the year was £380,000 in 1920, £210,000 in 1921, and £171,000 in 1922.

LEEDS GENERAL INFIRMARY.

The Prince of Wales was in Leeds on June 1st, and, after visits to the University and the Ministry of Pensions Hospital, Beckett's Park, spent a considerable time at the General Infirmary. He was received by Mr. T. L. Taylor, chairman of the Board of Management, who presented Sir Berkeley Moynihan, senior surgeon, Dr. T. Wardrop Griffith, senior physician, and other officers. Arrangements had been made by which the Prince was able to make a thorough inspection of representative portions of the institution. A prolonged study was devoted to the range of operating theatres, where Sir Berkeley Moynihan explained in detail the arrangements for sterilizing the instruments, etc., the placing of the students for instruction, and the whole apparatus of modern surgery. The Prince then passed through groups of students and nurses to the new *x*-ray department, which is said to be one of the most completely equipped in the country, having been completely reorganized during the past two years. The equipment was explained by Dr. G. Cooper, director of the *x*-ray department, to whom the Prince put many questions as to the possibilities of the new *x*-ray methods of treatment of certain types of cancer, and the prospects of cure. The Prince afterwards stated that he had been much impressed by the complete organization of the institution, and expressed his interest in the correlation of modern science with curative treatment in all its branches.

PUBLIC HEALTH AND EDUCATION.

A party of a hundred students from Leeds University, accompanied by Dr. Strong, professor of education, visited the West Riding County Hall at Wakefield on May 25th, in order to gain some insight into the work of the public health department. Dr. J. R. Kaye, county medical officer of health, in the course of an address, said that education of the public in health matters was now an essential feature of an efficient health department. The earlier public health Acts dealt with the grosser forms of insanitation, such as water, sewage, and environment. Now, however, measures of prevention were assuming a more personal or individual character. In proceeding along any lines of thought in relation to the prevention of disease or sickness it was necessary always to come back to the individual and his habits. Dr. Kaye then explained at length the work of the different departments, and the students inspected the county hall and the laboratories.

SMALL-POX PREVALENCE.

In the four weeks ending May 26th, 107 cases of small-pox were notified outside of London. In the successive weeks the numbers were 33, 22, 34, and 18. The counties affected were Derby with 26 cases, Gloucester 28, Lancaster 9, Nottingham 11, the North Riding of Yorkshire 5, the West Riding 27, and Lincoln (Kesteven) one case. In Derbyshire, Clowne had 9 cases, Heanor 8, Shardlow 8, and Bolsover 1; in Gloucestershire Cheltenham had 9 cases and various rural districts including Dean Forest 19 cases; in Lancashire, Nelson had 7 cases; in the North Riding of Yorkshire Middlesbrough had 5, and in the West Riding Doncaster had 8. The figures for May show a tendency towards reduction in the prevalence of the disease. The average weekly number of cases for the first thirteen weeks of the year was 40, for the four weeks in April 32, and for the four weeks to May 26th, 27. The total number of notifications outside of London since the beginning of the year has been 759.

Scotland.

SIR HENRY GRAY.

ON the occasion of his leaving Aberdeen, to become Chief of the Surgical Staff of the Royal Victoria Hospital, Montreal, a complimentary dinner will be given to Sir H. M. W. Gray by his medical friends on Wednesday, June 27th, at 7.15 p.m., in the Palace Hotel, Aberdeen. Mr. Wm. Anderson, F.R.C.S., 5, Albyn Terrace, Aberdeen, is acting as secretary of the committee which has charge of the arrangements.

EDINBURGH ROYAL INFIRMARY PAGEANT.

The supporters of the Edinburgh Royal Infirmary have for some years past organized an annual pageant for the double purpose of collecting funds for this institution and of attracting public attention to its needs. The pageant held on May 26th, 1923, was on an unusually elaborate scale; there was a procession of bands, costumed figures, and decorated cars well over two miles in length, in which over 7,000 persons took part. The central feature was a pageant of the nations, in which twelve of the city schools participated; a great Red Cross drawn by six grey horses was also a striking part of the procession. The students of the University entered into the arrangements with great enthusiasm, and among other schemes they made an effort to collect a mile of pennies (representing £220) in Princes Street. The state of the collection was shown progressively by the position of the red posts along this street. Numerous friendly societies, unions, and individual commercial firms were represented by deputations on foot or in decorated cars representative of their special trades. A continuous collection was made from the crowd of spectators lining the route. The proceeds derived from the pageant on May 26th amount approximately to £3,200. Returns from entertainments, concerts, etc., held on the same day in outlying districts will, it is anticipated, yield another £1,000. The students of the University were particularly active, and raised over £480, including £72 representing one-third of the "mile of pennies" at which they had aimed in Princes Street.

SCOTTISH ZOOLOGICAL SOCIETY.

The annual meeting of the Zoological Society of Scotland was held last week in the City Chambers, Edinburgh. Lord Salvesen, who presided, stated that in the course of the present summer the corporation electric tramways would be running past the gate of the Zoological Park at Costorphine, and a large area on the crest of Costorphine Hill, at present occupied by a golf course, would be added to the park. Accommodation would thus be provided for the gradually increasing stock of animals, and parts of the new ground would afford ideal surroundings for the carnivora, with backgrounds of rock and without bars. It was believed that the park would then be the largest zoological garden in Europe, and certainly, with its views over the Firth of Forth and the Pentland Hills, one with the finest situation. The council of the society had further come to the conclusion that, building prices being now stabilized, the time had come to proceed with the erection of a salt-water aquarium, which would occupy a site directly behind the main entrance. The financial result of the last year had been very satisfactory considering the adverse conditions of trade and the expenses entailed by the bad weather. Nevertheless expenditure had exceeded income by £390, but the income had increased steadily year by year since the commencement of the park ten years ago.

LORD HIGH COMMISSIONER AT EDINBURGH HOSPITALS.

The Lord High Commissioner, Lord Elphinstone, as representing the King at the General Assembly of the Church of Scotland, last week paid a round of visits to the hospitals in Edinburgh. The institutions visited included the Royal Infirmary, where the wards of Sir David Wallace and of Professor B. P. Watson, as well as the hospital kitchen, were specially inspected; the Royal Maternity and Simpson Memorial Hospital; Chalmers Hospital; the Royal Blind Asylum; and the Church of Scotland Deaconess Hospital. At the last-named hospital Lord and Lady Elphinstone were welcomed by Lord Sands, who stated that the hospital had been in existence for thirty years, having been founded as a memorial of Lady Grizell Baillie, the first deaconess of the Church of Scotland, and that one of its principal objects was to train workers for the foreign mission field and for mission workers in this country. The Lord High Commissioner, in reply, expressed the especial privilege that he felt in visiting the Deaconess Hospital on account of its connexion with the Church of Scotland; and Lady Elphinstone thereafter presented the prizes and certificates of training to the nurses who had been successful in examinations.

ROYAL VETERINARY COLLEGE.

A large and representative gathering assembled in the Royal (Dick) Veterinary College, Edinburgh, when a memorial window was unveiled by Lord Provost Hutchison. Professor T. Hudson Beare presided, and in opening the proceedings said that the occasion was of exceptional interest since the college was about to celebrate the conclusion of its hundredth session. The memorial window was intended as a link between the old college and the new; it had been given by veterinary surgeons all over the world who had been trained at the old college buildings in Clyde Street.

Ireland.

HOSPITAL GRANTS AND PUBLIC HEALTH LEGISLATION.

IN reply to Sir James Craig, M.D., and other members of the Dail, the Minister (Mr. Blythe) for Local Government (Free State) said the responsibility for the matters raised had only just been transferred to his department, and he had not the time nor opportunity to give them very serious consideration. He admitted that the past few years had been very hard on these voluntary hospitals, but this was not the time to rush into proposals that might put a very serious charge on the State. He could promise, however, that the whole matter of hospitals and of medical assistance and relief would be considered very shortly in all its different aspects, and not, as it had been in the past, with one department looking after one section and another looking after another. Replying also to Sir James Craig, the Minister said a Public Health Bill was being drafted, but he could not say when it would be introduced.

MEDICAL OFFICERS' SALARIES.

At a meeting of the Laoighis (Queen's) County Hospitals and Homes Committee the following resolution from the county dispensary doctors was received:

> As your Committee intend rearranging the salaries of the dispensary medical officers of the county, the Leix medical officers consider it advisable that the salaries of each dispensary district be fixed on a homogeneous basis; and they would suggest an initial salary of £250, rising by £10 annually to £350 per annum, for each district; the same to be retrospective.

A member of the committee gave notice of motion to have the medical officers' application considered at its next meeting.

The medical officers of the Newtown-Hamilton and Crossmaglen (Northern Ireland) dispensary districts applied to the Commissioner administering the Newry Union that their salaries should be the same as those paid to the medical officers in the Newry Union, to which they had been recently transferred from the Castleblayney Union. The Commissioner decided, subject to the approval of the Ministry of Home Affairs, to place both medical officers on the Newry scale, which means an increase of £105 per annum for Dr. Dawson and £75 per annum for Dr. McBride, the two transferred doctors.

MEATH HOSPITAL, DUBLIN.

At the annual meeting of the Meath Hospital the report submitted by the secretary stated that the year had been characterized by altered conditions necessitating drastic changes of policy, and by many disappointments. Bad trade and unemployment had affected the contributions

from employers and employees alike, while heavy taxation and the state of the country rendered it impossible for many subscribers to continue their support. The cost of upkeep of all hospitals had grown to an alarming extent, and the days of low or even moderate hospital charges had gone. The increased overhead expenses of a well appointed hospital were due in a measure to the costliness of the equipment and maintenance. For instance, the cost of the Meath Hospital nursing staff—wages, board, laundry, teaching, and examinations—now amount to more than the whole cost of the institution ten years ago. Although they started the year with a balance to credit of £201, the overdraft was £3,261. This was largely due to the amount received from patients—or perhaps it would be more correct to say on behalf of patients. During the year the amount paid by the War Pensions Committee for the treatment of ex-soldiers was £3,470, and for the year just closed the amount was only £993. The Ministry of Pensions had found that it was more economical and more convenient to send the ex-service men for treatment to two or three of the larger hospitals. There were on April 1st, 1922, 100 patients, and 1,376 were admitted during the year. Of these, 1,280 were discharged cured or relieved; 104 died, and 101 remained on March 31st, 1923. There were 6,584 accident cases treated as out-door patients, and the dispensary cases numbered 19,173, making a total of 25,757 extern cases.

Correspondence.

THE COUNTRY PRACTITIONER.

SIR,—All country doctors, and particularly the class known as village doctors, ought to feel grateful for a leading article in the BRITISH MEDICAL JOURNAL of May 26th, dealing with their position not only as panel practitioners, but as serving the country people in the rural districts. It is a truthful and sympathetic exposition of the situation, and nothing seems missed out.

The description of how he is being encroached upon, nearly squeezed out of existence by the changing conditions, social and economic, is only too true. Owing to excessive taxation the big country houses are standing empty; these, with their large staffs of servants, were once a main source of income to him. The new aristocracy of the present day, which has taken the place of the old, does not patronize the village doctor, neither does it trust him. They can, and do, bring their town's doctor when they need one, for twenty or thirty miles is nothing for a powerful car.

Then in these days the men in the country towns travel much further afield than in the days of horse and trap, and even the colliery doctors, who were never seen in the country districts, travel there by car to patients they have attended elsewhere. In other words, these men follow their patients, distance being of little object with perhaps only one reservation, which is that they are those who pay their bills; those who do not are left to be attended by the village doctor! To give one example only: a country town doctor with a good practice and a fairly large panel offered to attend a working man's wife eleven miles away in her confinement, where she lived two miles from a village doctor, but the woman did not know how she could get a message to him, say by night, if she took ill, and refused his offer; I rather regret to say he was an Englishman. It is an attempt to take the bread from another man's mouth. We have to live, certainly, but let us be not unmindful of others who have an equal right. The result of such incidents, which are increasingly common, is that the village doctor has a large number of poor people who are not worth running after by his distant neighbours, or who do not pay the bills they have received from the men who previously attended them. He has to be satisfied with "the crumbs which fall from the rich man's table."

I sincerely trust that all these facts will be remembered when the country doctor's case is under discussion at the forthcoming Conference.—I am, etc.,

May 30th. "A VILLAGE DOCTOR."

FROZEN SECTION OR LABORATORY INVESTIGATION OF CANCER OF THE BREAST?

SIR,—Dr. McKinstry, in a letter published on May 19th (p. 882), raises the question of the advantage of immediate diagnosis of tumours of the breast by frozen sections over the more methodical examination of the tumour in the laboratory. There is a great deal to be said for both methods, but grave disadvantages accrue to anyone who pins his faith always to one of them without realizing the limitations of each, for neither can always give the answer we require.

In the frozen section, if one gets a definite reply that the tumour is malignant, it is all the surgeon wants, and he can proceed with certainty. There is no doubt that this is a great advantage both to the patient and to the surgeon. But if the reply is that the section prepared in such haste is innocent, there should lurk in the back of one's mind the suspicion—which is a very real one—that another section might quite well give rise to a different opinion. I have had the verdict of innocency given me at an operation, though a more methodical investigation carried on later has reversed this opinion. It is a most unpleasant duty—it upsets the relatives and shakes their confidence—to tell them that all anxiety of malignancy is past, and then to rack their minds and the mind of the patient by demanding the performance of a more radical operation on account of the malignancy which has already been denied; yet this is the risk of the method.

For this reason all opinions given in such cases should be very guarded until the result of the more methodical examination is known; and this later investigation should always be carried out, and must be that by which the surgeon is ultimately guided. The recent work of Sir Lenthal Cheatle has shown only too clearly that a mass may evince unmistakable signs of malignancy at one spot while showing nothing but innocent tissues at another, and that a very careful investigation of many sections is often necessary before giving a final opinion. In short, therefore, a positive reply by this method is final, but a negative reply is by no means so; this is a little difficult to keep in mind.

Frozen sections are, of course, easy to arrange in hospital work, but are not so handy or convenient in private practice, and therefore the methodical laboratory investigation is chiefly used. This has the disadvantage of making the surgeon rely to some extent upon the naked-eye appearances, and the fallacies of this I dealt with in a paper published in the JOURNAL (January 20th, 1923, p. 94) on "The diagnosis of indefinite masses in the breast." It may also lay the patient open to the risk of dissemination of the cancer cells through the cutting across of the infected lymphatics where the mass is supposed to be innocent and investigation later proves it to be malignant. The Johns Hopkins School goes so far as to state that if a person has a tumour removed, investigated in the laboratory, and the radical operation performed a few days later, that she will inevitably die of secondary growths started from this cause within three years. I have no hesitation in combating this view in the strongest possible manner, but nevertheless it has been seriously stated by enthusiasts.

I think, however, that reasonable precautions should be taken, and this may easily be done if the cut surface of the gland from which the segment has been removed is seared with the thermo-cautery. Even in cases where no suspicion exists, and the whole gland is removed subcutaneously, I am in the habit of applying the cautery to the axillary tail, which contains many lymphatics. If this procedure be carried out there can be no hesitation in waiting the two days necessary to receive the laboratory report.—I am, etc.,

DUNCAN C. L. FITZWILLIAMS, C.M.G.,
London, W., May 28th. M.D., Ch.M., F.R.C.S.

THE NATURE OF BLOOD SUGAR.

SIR,—We have Winter and Smith's own statement that their last publication[1] is "to correct any doubts which Hewitt's criticism may have caused," yet they devote more than half their article to adverse comments on certain work

[1] Winter and Smith: BRITISH MEDICAL JOURNAL, 1923, i, 894-895.

of my co-authors and myself. This work dealt with the behaviour of sugars in the intestine, and the question before us at present is the nature of glucose in blood. It may be briefly indicated now, however, that we confined our discussion to phenomena observed in relation to the intestine and did not extend our results to tissues generally, blood not even being mentioned. As to the validity of their calculations of amount of glucose absorbed, deduced by them from our Figures 1 and 2, I may point out that Fig. 1 does not refer in any way to the intestine, and Fig. 2 does not mention absorption. The basis of this criticism is thus imaginary.

Winter and Smith say that I have misquoted them as to their conclusion that the normal blood sugar is γ glucose. I admit that such may be the case, but perhaps there is some excuse, for on three consecutive pages of *one* paper[2] they consider this sugar to be:

(*a*) "for the present undecided" (p. 109).
(*b*) "some form of glucose" (p. 109).
(*c*) "an unstable form of glucose" (p. 111).
(*d*) "γ glucose" (pp. 110 and 111), "and that it arises from the enolic form" (p. 110).

and now[1] they propound three additional conclusions—namely:

(*e*) "that a reactive sugar is present in the blood"
(*f*) "that there is no chemical evidence that γ glucose is formed in the body"
(*g*) "that normal blood sugar is an equilibrium mixture of α, β glucose and a reactive sugar."

I agree that dogmatism is, perhaps, not desirable at present, but the above will indicate the indefiniteness of their conclusions, and in view of the accepted definition that γ sugars include reactive modifications with the oxygen ring displaced from the normal stable position, I leave to others the task of reconciling these contradictory conclusions.

Is it possible that Winter and Smith have adopted a nomenclature not in harmony with that in common use? Certainly their consistent employment of the expressions "α, β glucose" or the "α, β form" does not convey the impression that they imply a mixture of two distinct hexoses in solution. But perhaps they do not mean this. One of two alternatives seems unavoidable: either their terminology is unique, or they are dealing with sugars, so far as I am aware, not yet described in the literature. May I give one other example of perplexities with which any critic of these authors has to contend? They state[2] that they failed to obtain laevo-rotation, while in another paper,[1] discussing the same observations, they say, "in one experiment laevo-rotation was obtained."

Winter and Smith now quote the effect of insulin on blood sugar,[1] but as the action of insulin is, I believe, not yet satisfactorily elucidated, and as the nature of blood sugar is still obscure, I will refrain from joining with them in speculation as to how far the action of one unknown on another unknown supports any or all of their several conclusions. The production by insulin of a non-reducing dextro-rotatory sugar *in vivo*[3] is of more than ordinary interest, especially when one remembers the dissimilar results these workers had with the same materials *in vitro*.[3] My adverse criticism (objected to by Winter and Smith) of extravascular experiments with blood thus gains additional support. Incidentally, are they not in error when they state that destructive criticism invalidates experiment? The last word should surely be "inference."

It is well to point out that any mild comments of mine were made bearing in mind the known properties of hexoses, were on purely chemical grounds, and were directed to the method adopted by Winter and Smith for torturing the sugar of extravascular blood. One notes, therefore, with gratification that they now realize that their technique "admittedly is not perfect."

Perhaps it is now evident that any further discussion of the particular point at issue is of no value until we are in possession of experimental observations not only sound, but less fertile as a source of contradictory interpretation.—I am, etc.,

London, W.C., May 30th. J. A. HEWITT.

[2] Winter and Smith: *Journ. of Physiol.*, 1923, 57, 100-112.
[3] Winter and Smith: BRITISH MEDICAL JOURNAL, 1923, i, 12-13.

WHAT IS A "DISEASED" TONSIL?

SIR,—I am prompted to ask this question after reading with great interest Dr. F. J. Poynton's most instructive lecture on "The prevention of heart disease." Under the heading of "Local Foci" he says, "I have no doubt in my mind that unhealthy tonsils should be removed in rheumatic children," and again, "it would be, in my opinion, a mistake to suggest the wholesale removal of tonsils in rheumatic children . . . when there is no evidence that they are *diseased*."

What is Dr. Poynton's definition of an "unhealthy" or "diseased" tonsil? It seems to me that this is a question of real practical value which has never been satisfactorily answered.

The presence of micro-organisms in the tonsillar crypts cannot be accepted as evidence of disease, for Davis has shown that although sterile at birth, they are infected within twenty-four hours and "plasma" cells make their appearance in the tonsillar tissue. Nor are we justified in assuming that because a tonsil is enlarged it is therefore "diseased." So eminent an authority as Mr. Mark Hovell in the discussion which followed his paper on "Tonsillotomy *versus* tonsillectomy," read before the Laryngological Section of the Royal Society of Medicine in 1921, definitely stated that he did not consider enlargement *per se* evidence of disease. With this view many will disagree, but is it not possible that the enlargement is a physiological hypertrophy and evidence that the tonsil is effectually carrying on its function of resisting systemic invasion?

Again, is pus in the crypts sufficient proof that the tonsil is "diseased"? I think most of us consider that it is, but may not the pus be further evidence of the more or less effectual fight which the tonsil has put up against invasion? Personally, I think it often is, and my own small observations in the realm of comparative pathology would seem to suggest that this might be so. Tonsillitis in sheep is hardly mentioned in textbooks of veterinary surgery; we can, therefore, assume that it is a rare disease, and from the simple structure of the sheep's tonsils it is what we might expect; but in fully 50 per cent. of sheep's tonsils which I have examined *post mortem*, I was able to express a fluid showing all the characteristics of pus. This pus, I think, must be more physiological than pathological.

I am in entire agreement with Dr. Poynton when he says, "the wholesale removal of tonsils must mean occasional disaster to a healthy child, and the grounds for such a step as this must be absolutely sure." It is, therefore, all the more important to define clearly what is a "diseased" tonsil.

Personally, I regard a diseased tonsil as one which shows intracellular micro-organisms on section, but clinically I cannot always recognize it.—I am, etc.,

N. STUART CARRUTHERS, F.R.C.S.Edin.

Norwich, June 2nd.

THE TREATMENT OF GENERAL PARALYSIS BY MALARIA.

SIR,—Dr. Templeton, in his interesting account in the BRITISH MEDICAL JOURNAL of May 26th, referring to the difficulty of obtaining the *Plasmodium vivax* in this country, says: "Attempts are being made to keep the parasite alive outside the body; so far it has not survived more than eight hours."

He does not refer to the cultivation of the parasites *in vitro*, but it has been cultivated in a suitable medium by several workers; and Drs. J. D. Thomson and H. P. Woodcock, writing in Byam and Archibald's *Practice of Medicine in the Tropics* (II, 1542), mention that "it is considered that there is no reason why the growth and multiplication of the parasites in the culture should not continue indefinitely, provided that fresh serum and corpuscles are added to the medium when necessary." Might not this method, then, give the necessary supply of the parasite for use in the treatment of general paralysis?—I am, etc.,

Aberdeen, May 26th. GEORGE A. WILLIAMSON.

SIR,—In connexion with the article by Dr. W. L. Templeton (BRITISH MEDICAL JOURNAL, May 26th, p. 895) the following notes on the treatment as carried out in the Landes-irrenanstalt at Feldhoff-bei-Graz, Styria, may be of some interest. Here the malarial parasite has been transmitted through many successive patients in the asylum from the original stock obtained from a young malarial patient at Trieste.

From the median vein of a patient who has already received a malarial infection 2 c.cm. of blood are drawn during an interval free from fever; 1 c.cm. is injected subcutaneously over the shoulder-blade, and the remainder smeared over an area of about 4 cm. around the puncture after the skin has been excoriated with the needle. The first paroxysm takes place on an average eight days after inoculation. After nine paroxysms (in some cases the number may be twelve or thirteen according to the physical condition of the patient) daily doses of quinine are given, while salvarsan is administered concurrently.

The results are certainly remarkable. When visiting the institution on May 1st I was able to hear from a number of the patients themselves their own account of the treatment and its results. On admission the majority had been noisy, restless, and disoriented, and some had marked physical signs—for example, inequality of pupils, characteristic gait, etc. As a result of the treatment they had become quiet and rational, and capable of employment as shoemakers, clerks, etc., in the asylum. Some patients had been discharged to their homes, and had been able to resume their occupations.

It may, of course, be argued that the remission of the disease is temporary, but the fact that a restless, noisy, dirty patient can become quiet, docile, and clean in his habits is an enormous gain. The return to their homes and avocations, even if it lasts only four or five years, is a fact of great social importance and a tremendous saving of public money.

Figures, supplied by Dr. Weber, the chief medical officer of the section, show a remarkable reduction in case mortality. Since the treatment was begun, at the end of 1921, 56 cases of general paralysis have been treated at Feldhoff by this method. The following table shows the number of cases of general paralysis of the insane in the institution and the number of deaths amongst these patients in the successive years.

General Paralysis in the Feldhoff Institution.

Year.	No. of Cases.	Deaths			
		1920.	1921.	1922.	
1920	65	31	18	3	13 survive.
1921	75	—	32	14	30 ,,
1922	69	—	—	16	53 ,,

I understand that at Vienna Professor Wagner has treated 600 cases, and at Hamburg Professor Weygandt some 300 cases, with favourable results.—I am, etc.,

Birmingham, May 28th. G. A. AUDEN, M.D., F.R.C.P.

MINERS' NYSTAGMUS.

SIR,—On May 5th (p. 757) under this heading I gave statistical evidence which conclusively demonstrated that in this district deficiency of light was not "the essential factor in the production of miners' nystagmus."

Last week I obtained details of the Plenmeller pit, the only pit I have discovered in this neighbourhood in which electric lamps are used alone. In 1922 there were 210 hewers, of whom 9 acquired nystagmus, and 304 underground non-hewers, of whom 4 acquired the disease. The percentage of nystagmus amongst the hewers compared with that amongst the non-hewers was therefore:

$$\frac{900}{210} : \frac{400}{304} = \frac{30}{7} : \frac{25}{19} = 4.2857 \text{ per cent.} : 1.3158 \text{ per cent.}$$

In my previous paper dealing with thirty-two pits, comprising 36,232 underground workers who used both oil and electric lamps, the percentage of hewers who acquired nystagmus during 1922 was 0.9049, while the percentage of non-hewers was 0.2374.

The inference is that the percentage of hewers affected was 4.7 times greater, and that of the non-hewers was 5.5 times greater where electric lamps only were used. It may be thought that there is something special about the Plenmeller pit which I am neglecting; but to-day I heard from the representatives of the South Moor Colliery that twenty-five years ago electric lamps were used solely, and the percentage of their nystagmus cases was very high; but on abolishing electric lamps and installing oil safety lamps they had had no cases of nystagmus amongst the non-hewers, and hardly any amongst the hewers. Comment is unnecessary.—I am, etc.,

Newcastle-upon-Tyne, May 28th. A. S. PERCIVAL, M.B.

ETHER *VERSUS* CHLOROFORM.

SIR,—Many years ago I pointed out again and again in the BRITISH MEDICAL JOURNAL that where ether is used, as in Dublin, New York, and throughout America, death under anaesthesia is extremely rare, whereas, where chloroform is used, as in London, death under anaesthesia is extremely common. And yet week after week the chloroform holocaust goes on.

It was Carlyle who said "Against stupidity the very gods fight in vain. There is in it an opulence of murky stagnancy, an inexhaustibility, a calm infinitude which will baffle even the gods—which will say calmly, 'Yes, try all your lightnings here; see whether my dark belly cannot hold them!'"

Can we wonder that it took Lister years to establish his principles in England, and that Jenner is still denounced by hundreds of thousands of his countrymen?—I am, etc.,

Kensington, W., May 26th. J. MCNAMARA, M.D.

DIPHTHERIA ANTITOXIN ON SUSPICION.

SIR,—Although the paramount importance of giving antitoxin in the early stage of the disease is well recognized by those who have seen much of diphtheria, there is evidence, unfortunately, that this fact is not so widely appreciated as it should be. A striking illustration is afforded by the experience obtained in one of the large metropolitan fever hospitals during the past year. Of 150 cases of diphtheria which proved fatal at this hospital during 1922, according to the report of the medical superintendent, no less than 46, or 30 per cent., died within twenty-four hours of admission, and 17 more, or 42 per cent., within forty-eight hours.

In view of the almost invariable success of antitoxin, if administered in the early stage of diphtheria, and the comparative harmlessness of the remedy even should its use subsequently prove to have been unnecessary, this record must be regarded as nothing short of deplorable. In some instances the delay in securing proper treatment is due to the failure of the patient's parents to call in a doctor, perhaps, on account of expense, or, possibly, by reason of their not realizing that he is ill. The general appearance of a diphtheria patient, especially in severe attacks, is occasionally very deceptive in the early stage, and even the medical attendant is apt to be misled, unless the throat be examined.

I am convinced, however, as the result of observations extending over many years of cases of diphtheria received into hospital, and a knowledge of the circumstances attending their removal, that the most frequent source of delay in treatment is the fatal practice of awaiting the result of bacteriological examination before deciding to give antitoxin, or sending the case into hospital. Hesitancy on the part of the practitioner to certify for removal before his diagnosis is confirmed is not unnatural, but the same objection does not apply to giving antitoxin. Until outside practitioners can be persuaded to administer serum on the mere suspicion of a case being one of diphtheria, the sad experience of patients being so frequently sent into hospital in a hopeless condition will continue to be a reproach to the profession.

It has been stated that a belief exists in the minds of a good many outside practitioners that the medical superintendents of the fever hospitals are averse to antitoxin

being given to patients before they are sent into hospital. I do not know on what foundation this belief exists, if, indeed, it does exist, but I do know that the fact is quite to the contrary. Speaking on behalf of all my colleagues in the Fever Service, I am able to assert that if serum were to be given to every case of suspected diphtheria at the earliest possible moment before being sent into hospital, such action on the part of the certifying practitioner would be warmly welcomed. It is with the object of removing any misconception on this point which may exist that I venture to trouble you with this communication.—I am, etc.,

F. FOORD CAIGER,
Chief Medical Officer, Infectious Hospitals Service, Metropolitan Asylums Board.

London, S.W., June 1st.

THE COASTAL MOSQUITO NUISANCE.

SIR,—I should be grateful if you would allow me to supplement briefly certain portions of the letter by Surgeon Commander D. H. C. Given, R.N. (May 26th, p. 915), in which he refers to the work of the Hayling Mosquito Control.

The "control" of mosquitos is a task which must be undertaken in three successive, and entirely distinct, stages. We have (1) to discover which kind or kinds of mosquitos are responsible for the nuisance existing in the district concerned; (2) to obtain the fullest information available relating to the life-histories, habits, etc., of the offending species, in addition to ascertaining to what extent such habits are influenced by local climatic and topographical conditions; and (3) to devise and apply measures of extermination based upon the knowledge thus gained.

As regards (1), special mention must be made of Mr. F. W. Edwards (Natural History Museum, London), who, as long ago as August, 1920, predicted that the salt water mosquito, *Ochlerotatus detritus*, would prove to be one of the species prevalent in a seaside district such as ours. Since that time a mass of evidence has been obtained showing this particular species to be practically the entire cause of the mosquito nuisance, not only of Hayling, but also of a large number of other seaside places on the south and east coasts of England.

As regards (2), any reference to the investigations carried on at Hayling would be incomplete, not to say misleading, unless associated with the name of Colonel S. P. James, of the Ministry of Health, the leading authority upon the subject of mosquito control. The assistance which we have been receiving from Colonel James during the past year and a half is of so diverse and extensive a character that it is impossible to do more in a letter such as this than to state that, but for the help in question, no work of any value could have been accomplished.

As regards (3), I need only mention that we are making steady progress with the task of applying the various remedial measures available, in the face of a variety of difficulties, of which those relating to the purely scientific branches of the work are perhaps the least formidable. Commander Given advocates that the inhabitants of mosquito-infested districts should proceed "on the lines initiated at Hayling and just recently adopted at Gosport, through the medium of a mosquito control committee consisting of interested residents assisted by the health authorities concerned." It is very important that the functions of public health officers in regard to the mosquito nuisance should be defined, for we should greatly welcome in Hayling any assistance which our health authorities might see their way to provide; up to now no aid of this kind has been forthcoming.—I am, etc.,

JOHN F. MARSHALL, M.A., F.E.S.,
Hon. Director, Hayling Mosquito Control.

Hayling Island, May 27th.

GENERAL PRACTITIONER AND CONSULTANT.

SIR,—There appears to be a growing tendency, especially among the younger specialists, to adopt a course, when patients are sent to them for consultation, which I and many other general practitioners consider objectionable. I refer to the practice of transferring a patient sent to them for their opinion to another specialist, without first communicating with the patient's own medical man. This has occurred twice fairly recently in my own practice. The first case, a child sent to a physician, was transferred to a surgeon, without my knowledge and consent, an operation, which in my opinion was most unadvisable, being urged. Again, an obscure eye case sent to an ophthalmic surgeon was immediately transferred to a gynaecologist for examination and an opinion. The irony of this case was that the gynaecologist, not knowing that I was her doctor, wrote to and transferred her to a local colleague of mine. Now I am on the telephone and live within twenty-five miles of London and thirty-four minutes by rail, yet no attempt was made to consult my wishes in either case. I wrote expostulating to the ophthalmic specialist, and received a curt reply saying it had not even occurred to him to consider my opinion on a gynaecological point.

If this practice of transferring patients without their doctor's consent to another specialist is to grow, I am afraid it will make the majority of men in general practice less inclined to send their cases to their professional brethren, which, in my opinion, would be most unfortunate. One cannot help feeling that at a time when private clinics run by a number of specialists are being started in London, it would be most undesirable if the general practitioner felt that his cases would be transferred from one to another specialist without his consent. In conclusion, I should like to bear testimony to the fact that in my experience these cases are the exception, and that the majority of consultants treat one with every courtesy and consideration.—I am, etc.,

Woking, May 28th. R. THORNE THORNE.

REGISTRATION OF NURSES.

SIR,—The suggestion that women who have been nursing the sick for three years before November, 1919, should be admitted to the Register without taking any training into account seems to me deplorable. In my opinion the Register resulting will be absolutely farcical.

I suppose nurses, in self-defence, will have to register, but I hope they will one and all take good care to let the public know on every possible occasion that this registration is a "delusion and a snare."

The only status that a nurse should feel at all adequate to protect her high calling is membership of the College of Nursing. I for one will, on all occasions, draw a very material distinction between a so-called registered nurse and an adequately and fully trained nurse as proved by her membership of the College of Nursing.

May I appeal to the better instincts in our ranks to voice their indignation on behalf of those women who have taken the trouble to go through a course of severe and arduous training in our hospitals.—I am, etc.,

G. W. R. SKENE,
Chairman, Medical Committee, Willesden General Hospital.

London, N.W., May 21st.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT the commemoration to be held on June 27th it will be proposed in convocation to confer the honorary degree of Doctor of Science on Dr. Louis Lapicque, professor of physiology in the University of Paris, and on Sir Ernest Rutherford, F.R.S.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on June 2nd the following medical degrees were conferred:

M.D.—A. E. Clark-Kennedy.
M.B., B.Ch.—L. B. Cole, C. C. R. Downing, C. P. Oliver, C. E. Whitting.
M.B.—F. Allen.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on May 16th. The following were constituted the boards of examiners for the first and second examinations for medical degrees in the session 1923–24; the examiners whose names are marked with an asterisk have been appointed chairmen of their respective boards:

Chemistry.—*Mr. H. C. H. Candy (London Hospital Medical College) and Mr. J. A. Gardner (St. George's Hospital Medical School and London School of Medicine for Women), together with the external examiners.

General Biology.—*Dr. Doris L. Mackinnon (King's College) and Dr. E. J. Salisbury (University College), together with the external examiners.

Physics.—*Mr. J. H. Brinkworth (St. Thomas's Hospital Medical School) and Mr. B. L. Worsnop (King's College), together with the external examiners.

Anatomy.—Professor E. Barclay-Smith (King's College) and Professor F. G. Parsons (St. Thomas's Hospital Medical School), together with the external examiners.

Physiology.—Professor H. E. Roaf (London Hospital Medical College) and *Professor W. D. Halliburton (King's College), together with the external examiners.

Pharmacology.—Dr. V. J. Wooley (St. Thomas's Hospital Medical School) and Dr. O. F. F. Leyton (London Hospital Medical College), together with the external examiners (*Professor A. J. Clark).

The following were appointed associate examiners for the M.B., B.S. examination for the session 1923-24:

Medicine.—Professor F. R. Fraser, Dr. Gordon M. Holmes, Professor F. S. Langmead, and Professor H. Maclean.

Surgery.—Mr. T. P. Legg, Mr. Gordon-Taylor, Mr. W. H. Clayton Greene, and Mr. H. S. Souttar.

Obstetric Medicine.—Dr. Eardley Holland and Mr. Miles H. Phillips.

Pathology.—Mr. T. W. P. Lawrence and Dr. S. Macdonald.

With reference to the medical curriculum for internal students it was resolved:

That, for the first medical examinations for medical students held in July and December, 1924, and for the second medical examinations, Part I, for the internal students held in March and July, 1924, and March, 1925, arrangements be made to provide alternative sections of questions on the old and on the new syllabuses.

A similar resolution for external students was adopted by the Senate on March 21st, 1923.

Regarding the diploma in psychological medicine it was resolved:

That in the syllabus in anatomy, histology and physiology of the nervous system in the regulations for the examination for the diploma in psychological medicine for the words "Origin, chemistry and cytology of the cerebro-spinal fluid" the following be substituted: "Chemistry of the nervous system and cerebro-spinal fluid; Metabolism, vitamins and food in relation to nervous and mental diseases; Physico-chemical methods as applied to biochemical research; Blood and urine analysis; Acidosis, uraemia, uric acid; Physical concomitants of emotion; Methods of recording reflexes and tremors in man."

Regulation 3 for the diploma was amended as follows:

The examination for the diploma is open to any candidate whose name is in the *Medical Register*, provided that, before being admitted to Part B, the candidate shall have held for not less than six months a resident or whole-time appointment at an institution (or institutions) for mental diseases recognized for the purpose, or shall have attended for not less than twelve months the practice of such institution (or institutions), or such other practice as may from time to time be approved by the University.

The note prefixed to the regulations for the diploma in psychological medicine was amended by the addition of the following:

A candidate who has already been awardel the diploma in psychological medicine with special knowledge of either of the two branches, psychiatry or mental deficiency, will be permitted to offer himself for examination in Part B (ii) psychological medicine only at a subsequent examination, with a view to special qualification in the other branch of the subject, on payment of the full fee ordinarily payable for Part B of the examination, and if successful, shall have added to the diploma already awarded to him a statement that he has passed the examination with special knowledge of that branch also.

Sir Cooper Perry and Mr. H. J. Waring were appointed governors of the Imperial College of Science and Technology as representatives of the University.

Sir Joseph Verco, M.D., was appointed to represent the University at the Pan-Pacific Science Congress to be held at Melbourne in August next.

The following have been appointed staff examiners in the subjects of examinations for medical degrees for 1923-24:

Anatomy.—Professor T. Yeates and Professor E. Fawcett.
Bacteriology.—Professor J. W. H. Eyre.
Chemistry.—Professor W. H. Lewis and H. Forster Morley.
Forensic Medicine and Hygiene.—Professor A. Allison and Professor E. W. Hope.
General Biology.—Mr. A. Eastwood and Miss P. C. Esdaile.
Medicine.—Drs. J. Calvert, J. Fawcett, R. T. Williamson and C. R. Box.
Mental Diseases and Psychology.—Drs. R. H. Cole and W. H. B. Stoddart.
Neurology.—Sir Frederick Mott and Dr. E. Farquhar Buzzard.
Obstetric Medicine.—Professor T. Wilson and Dr. T. G. Stevens.
Oto-Rhino-Laryngology.—Sir William Milligan and Dr. Herbert Tilley.
Pathology.—Professor L. S. Dudgeon and Sir Bernard H. Spilsbury.
Pharmacology.—Professor J. A. Gunn and Professor A. J. Clark.
Physics.—Mr. A. Wood and Professor S. Russ.
Physiology.—Professor M. S. Pembrey and Professor G. A. Buckmaster.
State Medicine.—Dr. A. G. R. Foulerton and Dr. T. M. Legge.
Surgery.—Mr. C. H. Fagge, Mr. E. W. Hey Groves, Professor G. E. Gask and Mr. C. A. R. Nitch.
Tropical Medicine.—Dr. G. C. Low.

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—†Una C. Garvin. ‡Winifred M. Gray, *†Dulcie H. Lukis, ‡§D. H. Patey (University Medal). Elsa Y. Adams, Sarah E. Andrews, O. A. Baker, J. C. Blake, Gladys L. Buckley, K. S. Captain, Gertrude B. G. Carden, Eva D. Cook, D. C. Corry, Eleanor M. Creak, A. J. Dodhi, A. H. G. Down, Helen W. Duncan, V. Feldman, R. K. Ford, Christine P. Francis, A. J. Gardham, P. C. C. Garnham, F. A. Gaydon, G. N. Golden, Evelyn E. Gourlay, E. E. D. Gray, Gwenvron M. Griffiths, C. F. Harris, Marjorie F. Hayward, Evelyn N. Heather, Nancy M. Hield, E. G. Housden, G. H. Howells, Dorothy M. Howgate, Margaret G. Jones, Kathleen H. B. King, Edna I. Langston, B. L. Laver, E. A. Leviseur, J. L. Livingstone, W. E. Lloyd, Barbara V. Lucas, A. N. Macbeth-Morland, A. C. Maconie, N. S. Macpherson, R. A. Madgwick, Phyllis M. Manson, Edith T. Marshall, Mary Michael, J. B. G. Muir, Ruth N. Parker-Gray, G. P. Patel, Enid M. Powell, Muriel Rawlinson, Dorothy S. Russell, Emily V. Saunders-Jacobs, C. D. Shapland, F. G. A. Smyth, Emma M. Store, R. O. Swaine, A. Walk, W. R. Ward, Cicely Weatherall, H. N. Williams.

* Distinguished in Medicine. ‡ Distinguished in Surgery.
† Distinguished in Forensic Medicine. § Distinguished in Midwifery.

UNIVERSITY OF MANCHESTER.

Diploma in Bacteriology.

AT the annual meeting of the Court of the University of Manchester approval was given to the institution of a special Diploma in Bacteriology. This is the first diploma in this subject instituted in this country, and the courses of instruction, which candidates will be required to attend before presenting themselves for examination, are designed to supply a thorough training in the general principles of the subject, together with advanced courses in one or more special branches.

Graduates in medicine and in science of any approved university may enter for the course, and the syllabus has been designed to meet the requirements of medical graduates who wish to qualify for bacteriological posts or to obtain a special knowledge of medical bacteriology, and of graduates in science who desire to take up some branch of bacteriological work.

The diploma will be awarded to candidates who have, after graduation in science or in medicine, attended the prescribed courses over at least one academic year, satisfied the examiners in the written and practical examinations, and presented a satisfactory thesis on an approved subject.

The course of study includes (*a*) courses of instruction in general bacteriology, including the morphology and physiology of bacteria and bacterial classification, the history of bacteriology, quantitative methods of bacteriological investigations, and elementary bacteriological chemistry.

(*b*) Special courses of instruction in two or more of the following subjects must also be taken (1) bacteriological analysis of water, milk, food, etc., (2) advanced bacteriological chemistry, (3) biometry, (4) parasitism, infection and resistance, (5) epidemiology, (6) comparative pathology.

The examination will consist of two written papers on the general subjects, together with an oral and practical examination, a written paper on each of the special subjects selected, together with such oral and practical examination as may be required by the examiners. Candidates must, during the second half of their course of study, select some subject to be approved by the professor, on which they must submit a thesis at the time when they present themselves for examination, or within three months from that date. This thesis must include a report on personal observations carried out in the laboratory.

The increased importance of bacteriology in human and veterinary medicine, in agriculture, and in other branches of applied science, makes it very desirable that an adequate course of training should be available for those who wish to undertake bacteriological work of any kind. It is impossible to include in the ordinary medical curriculum more than the rudiments of this subject, and practically no provision is at present made for non-medical students, such as those studying biochemistry and kindred subjects, to whom a knowledge of bacteriological methods would often be of the greatest service. It is hoped that the action of the University in instituting this new diploma will meet the needs of a considerable number of post-graduate students, for whom no adequate provision has hitherto been made, and will help to supply efficiently trained bacteriologists for the numerous posts for which they are now required.

Delepine Research Fellowship.

Applications from medical graduates for the Sheridan Delepine Research Fellowship in preventive medicine, value £300 per annum, must be received by the Internal Registrar of the University by June 15th. The fellowship, which is for one year from October 1st, 1923, is founded in memory of the late Professor Delépine, and the candidate elected will be required to register as a research student of the University, and to devote the whole of his time to research in the department of bacteriology and preventive medicine.

SOCIETY OF APOTHECARIES OF LONDON.

THE following candidates have passed in the subjects indicated:

SURGERY.—B. Basuny, W. A. Drake, E. W. Hicks, *L. K. Htoe, W. J. Jameson, C. S. Laurence, J. Totton.

MEDICINE.—†B. Basuny, A. J. Dowek, A. Gullertein, M. Hawke, J. Totton.

FORENSIC MEDICINE.—W. A. Drake, O. Sinanides, M. A. E. Somers, B. Zeitoun.

MIDWIFERY.—W. J. Jameson, W. R. H. Pooler, A. Vasudev, H. Whitby.

* Section I. † Section II.

The diploma of the Society has been granted to Messrs. B. Basuny, M. Hawke, W. J. Jameson, C. S. Laurence, J. Totton, A. Vasudev.

A LONG series of post-graduate lectures in general medicine and surgery, and in various specialties, have been arranged by the University of Vienna for the months of July, August, and September. There will also be a refresher course from September 17th to 29th. Programmes can be obtained on application to the Bureau des Fortbildungskursus, Frankgasse 8, Wien IX.

THE Central Midwives Board for England and Wales met on Thursday, May 24th. A special meeting was held first, followed by the ordinary monthly meeting. Sir Francis Champneys presided at both. The business dealt with at the latter meeting consisted of the usual routine. The Standing Committee reported the receipt of a letter from the Registrar of the General Medical Council stating that the Penal Cases Committee of the Council, in a recent case before it, recognized the importance of ensuring that certified midwives should not be induced by medical practitioners to undertake operative procedure outside their province.

Obituary.

JOHN CHIENE, C.B., M.D., LL.D., D.Sc., F.R.C.S.E.,

Emeritus Professor of Surgery, University of Edinburgh.

A STRIKING figure of a past generation has gone with the death on May 29th of Emeritus Professor John Chiene, C.B., at the age of 80. Professor Chiene, since he gave up the Chair of Surgery in 1909, had lived in retirement at his country house, Aithernie, Davidson's Mains, near Edinburgh. His end was quiet and occurred after a few hours' illness, for he had been in excellent health on the preceding day.

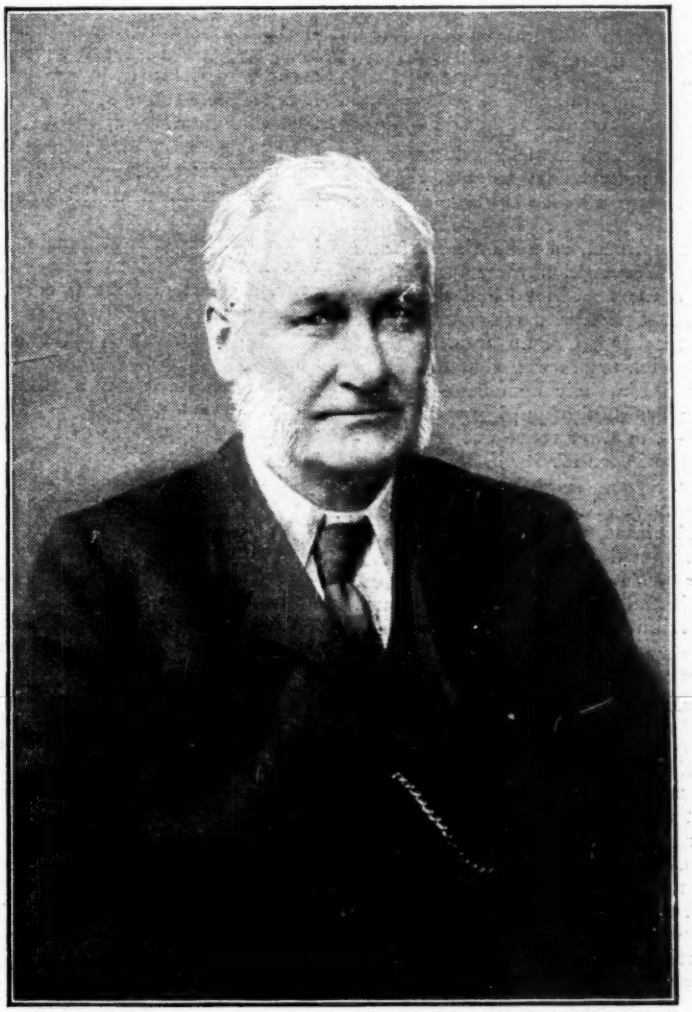
Professor Chiene was born in Edinburgh on February 25th, 1843—a year celebrated in Scottish annals as the year of the "Disruption"; his father was Mr. George T. Chiene, an Edinburgh accountant, of a Fifeshire family. He was educated at Edinburgh Academy, where at the ages of 16 and 17 he gained respectively the Ferguson and Mitchell Medals for Mathematics. Perhaps this early attention to mathematical studies directed his mind to trigonometry, for all his old pupils will remember his fondness in later life for the triangle. At school he played in the football "twenty" and in the cricket eleven, and at a later stage supported the Academical "twenty" of former pupils. A still more intimate interest in Rugby football was evinced by the fact that he was first President of the Scottish Football Union in 1873, and held the same office for a further period in 1877.

He spent a short period of study in Paris, Berlin, and Vienna, and after the usual medical course at Edinburgh took the M.D. degree with honours in 1865. The next year was spent as house-surgeon with Mr. Syme, then Professor of Clinical Surgery in the Royal Infirmary. Here one of his fellow residents was Mr. A. G. Miller. A previous house-surgeon with Professor Syme, eleven years before, had been Joseph Lister, who had left behind in Edinburgh an example of experimental work in surgery, controlling the results of his researches by microscopical observations. When Lister returned to Edinburgh in 1869 as successor to Syme in the Chair of Clinical Surgery, Mr. Chiene spent two hours or more daily in his wards, engaged in clinical study. This was repeated each year until Lister went to London in 1878, when Mr. Chiene was appointed junior surgeon to the Royal Infirmary. In the summer of 1875, when Lister was absent on the Continent, he left his wards and clinical lectures in charge of Mr. Chiene for two months. The nine years' association had an important effect on Mr. Chiene's work, for when later he became Professor of Surgery, one of the first developments he introduced was a laboratory for surgical pathology in connexion with the chair; he claimed that it was the earliest in Great Britain, and he continued to take a practical interest in it till his death.

During the period of his work in Lister's wards he was also engaged in teaching anatomy, and so he came under the influence of John Goodsir, another of the famous figures in the Edinburgh Medical School. Shortly after graduation he had become junior demonstrator in Goodsir's class, and in a lecture entitled "Looking Back, 1907-1860," Professor Chiene gave the following account of his final association with Goodsir.

"In the end of February, 1867, my dear master, John Goodsir, sent for me, his junior demonstrator of anatomy, to his house at South Cottage, Boswell Road, Wardie, off the Granton Road. I found him lying on a camp bed in a narrow room (in which, I understand, Edward Forbes died), a small table at his side, and on the table his Bible and *Quain's Anatomy*. He asked me how his students were getting on, and bade me farewell. His last words were, 'Teach *my* students, Dr. Chiene. Good-bye.' He died shortly afterwards, on the 6th of March, and I have taken these words as my life-motto."

Goodsir was succeeded in the chair by William Turner (later Sir William), and by him Mr. Chiene was promoted to the post he had held of senior demonstrator in the Anatomical Department of the University. Three years later, in 1870, Mr. Chiene began to lecture in the Extra-Mural School on operative surgery, and next winter on systematic surgery. In this course he tells us he introduced two things he had never seen before in a lecture room—coloured chalks for the blackboard, and a naked man on whose skin he delineated the flaps of amputations and other surface markings. The latter innovation was banned by some of the University authorities, though the prohibition was disregarded. The class was originally held in Minto House, which had been inaugurated by Syme and has been immortalized by John Brown as the scene of Ailie's operation in *Rab and His Friends*. As Minto House disappeared in the course of city improvements to make way for the new Chambers Street, Mr. Chiene and other lecturers found a resting place in the dwelling house at 27, Nicholson Square. Here the dining room of the house speedily proved too small for his growing class, and with the help of his fellow lecturers a classroom was run up in the front garden between a Friday and the following Tuesday. The class in surgery continued to grow and, beginning with 13 students, in a few years numbered 155, a large class for an extra-mural lecturer. In this he enjoyed the good fortune that had in several cases before his time proved the making of a young lecturer, since he was competing for the students' favour against the aged Professor Spence in the University, whose lectures, from the accounts of those who attended Chiene for instruction, were very dreary. In 1882 Mr. Chiene was elected to the Chair of Surgery in succession to Professor Spence, gaining the post by a narrow majority over the late Mr. John Duncan.



Photograph by [*A. Swan Watson, Edinburgh.*

PROFESSOR JOHN CHIENE.

His early success with students was now shown to be due to special personal gifts as a teacher, combined with great simplicity and earnestness, a faculty for clear exposition, and a racy and genial humour. In the wards where his clinical teaching was carried out, sympathy and kindliness of heart were characteristics that commended him both to students and patients. Along with this, however, he had a

capacity for direct speaking which gained for him among the students the sobriquet of "Honest John," and sometimes proved a cause of intimidation to the diffident or of offence to the high-spirited. He was dominated by his feeling of responsibility as a teacher. His lectures were directed towards inculcating the principles of surgery with relatively little regard for changing details of operations. As a result, to anyone reading over notes of Professor Chiene's lectures delivered thirty years ago, there appears to be very little requiring alteration in the light of fuller modern knowledge.

Another matter which receives, perhaps, too little consideration in present-day medical schools is that he taught rather with the object of rendering his students efficient for general practice than with the view that they should become specialists in surgery. The apophthegms which often cropped up in his lectures displayed a shrewd knowledge of human nature and keen perception of fundamental facts. Such sayings as "A pimple on a man's nose is of more importance to him than a sarcoma in his neighbour's thigh"; "Surgery is nothing but a knowledge of anatomy with common sense and a little bacteriology added"; "Find out all you can about your patient's lesion by asking questions with your hands behind your back; so soon as you touch him he begins to question you"; these were current coin with many generations of students. Favourite books were recommended to every class, such as Hilton's *Rest and Pain* and *The Meditations of Marcus Aurelius;* for Gilbert White's *Natural History of Selborne* Chiene had much the same lasting veneration that Sydenham entertained for *Don Quixote*. In clinical teaching Chiene was fond of drawing the attention of his dressers to two sketches hung in the side room of his ward for their benefit, one illustrating a mother bird feeding a nestful of gaping youngsters—the wrong kind of teaching—the other representing a newfledged chick picking up grains of corn for itself—the correct method of gaining knowledge.

His publications were not many. A collection of *Lectures on Surgical Anatomy*, with 31 plates, was published in 1878, while he was still an extra-mural lecturer, and a small fasciculus entitled *Principles of Surgery* was issued in 1882, the year in which he was elected to the chair of surgery. He made also occasional contributions to periodical medical literature.

In 1900, when local patriotism was equipping hospitals in various parts of the country to aid the forces in South Africa, he went out as the senior surgeon of an Edinburgh hospital, becoming, soon after arrival in South Africa, Consulting Surgeon to the South African Field Force. A series of interesting letters recording his experiences were published in *The Scotsman* at the time, and he later received the decoration of C.B. in recognition of his services. In 1908 he received the degree of D.Sc. from Sheffield University, and in 1910, after his retirement, the Universities of Glasgow and Edinburgh both conferred the degree of LL.D. upon him.

An indication of the affectionate regard entertained for him was afforded by a dinner given in his honour in 1911 by the survivors of his sixty-two house-surgeons. Letters of appreciation were received from all, save one in a distant part of the world, and although some were dead and many were scattered to the ends of the earth, nearly forty were present in Edinburgh to celebrate the occasion. A plaque of his head cast in silver, the work of Mr. W. G. Stevenson, R.S.A., was presented to him at this time and a replica in bronze was provided for each of the old residents. About the same time his portrait was painted for a number of friends and admirers by Mr. Fiddes Watts, R.A.

In 1869 Mr. Chiene married Elizabeth Mary, daughter of David Lyall of Calcutta, who survives him, as well as two sons and one daughter. The elder son is a well known surgeon in Edinburgh.

The funeral took place on Friday, June 1st, at the Dean Cemetery, Edinburgh, and was attended by a large gathering representative of the medical profession and general public. At the grave a short service was conducted by the Rev. Dr. Stott, parish minister of Cramond. Among the pall-bearers were Principal Sir Alfred Ewing, K.C.B., LL.D. (representing the University of Edinburgh); Sir David Wallace, K.B.E., C.M.G. (representing the Royal College of Surgeons, Edinburgh); and Sir Joseph Fayrer, Bt., C.B.E. (representing the Royal Infirmary of Edinburgh).

Appreciations.

By Sir Harold Stiles, K.B.E., F.R.C.S.E., Regius Professor of Clinical Surgery, University of Edinburgh.

To one who has been pupil, house-surgeon, and subsequently for ten years a University assistant, to the late Emeritus Professor Chiene, it is a privilege, as well as a labour of love, to endeavour to pay tribute to his memory. That he possessed such a strong and many-sided personality, that he was such a well known and widely esteemed citizen, so highly reputed as a surgeon, so famous and beloved as a teacher, as well as so full of humanity, makes the task no easy one.

Chiene was appointed to the chair of systematic surgery in 1882. His reputation as an extra-mural teacher had been so great that the writer purposely delayed taking out a course of lectures in surgery until Chiene had become professor. One cause of his great success as a lecturer was the fact that he never wrote out his lectures in full. They were always thought out afresh each year. I well remember, when his university assistant, the mosaic appearance of his printed syllabus, which was crossed in all directions with jottings he had made at various times. Although he took a keen interest in the science and progress of surgery, he was not a laborious reader of the subject. He had, however, a great gift for weeding out the grain from the chaff of surgical literature. Like his great masters, Syme and Lister, he was an individualist; his lectures were founded almost entirely on his own observations and experience. He presented his facts in a simple, original, and logical manner and with such a fine sense of proportion that the student got a mental perspective of surgery and a grip of its principles well calculated to prove of lasting value to him in his future career. Few teachers accomplished so successfully the difficult task of lecturing to juniors and seniors in the same class, and few left such a deep and lasting impression of the principles which should guide the practitioner in dealing with the surgical conditions he would be most likely to meet with in general practice.

As a clinical teacher Chiene was equally successful and popular. It was a treat to see with what consummate skill he used to brush aside details and demonstrate how the cases illustrated the surgical principles he so forcibly laid down in his systematic lectures. No one could have been more earnest and conscientious in clinical teaching, and so convnced as he of its value, that it was a serious offence for a student to appear in his wards without his notebook and pencil ready to hand.

Chiene could not be regarded as a rapid or brilliant operator, nor would he have wished to be so considered. Having been a demonstrator, first under Goodsir and then under Turner, he was a good anatomst and could operate rapidly when the necessity arose, but he always put safety first, and anything in the shape of playing to the gallery was repulsive to him. His success as an operating surgeon was due in no small measure to the judgement—he knew what to do as well as how to do it. Unfortunately for him, however, in spite of his strong character and in spite of the fact that he had no lack of surgical courage, he was possessed of a sensitive and, in some respects, a nervous temperament, which made the strain of his operative work all the heavier; moreover, the anaesthetic was always a source of anxiety to him. It was this trait in his character that made him happier in the lecture room and wards than in the operating theatre.

When Lister left Edinburgh, it was Chiene who bore the brunt of the battle of "Listerism" which was being waged in the Edinburgh Royal Infirmary, just as it was Hector Cameron who fought it in Glasgow. Chiene's victory was all the more creditable considering the strength of the forces arrayed against him. Chiene was brought up in the school of anatomical surgery which prevailed at the time. His intimate association with Lister and the discovery of the tubercle bacillus by Koch in the same year as he was appointed Professor of Systematic Surgery, combined with his keen foresight and wide outlook, were doubtless the main

influences which determined him to set up a laboratory of bacteriology and surgical pathology in the University. This was the first teaching bacteriological laboratory in the United Kingdom, and, by establishing it, Chiene set the example, in the academic teaching of surgery, of cultivating the subject as a science so that its art might be better taught and promoted. Although he was not himself a laboratory worker, he spared neither time nor money to encourage research by his assistants. I am glad once again to state that I would not be occupying the Clinical Chair had it not been for the facilities which the laboratory afforded me for carrying on original investigations in surgical pathology and for the generous help and encouragement given by my chief.

During the later part of his occupancy of his chair, Chiene began to feel the effects of his strenuous life, and though destined yet to live beyond the allotted span, his honest and conscientious nature prompted him to sheathe his sword and hand over the command to a surgeon of the younger generation. That he felt the wrench keenly and sorrowfully is only human, and it was a great disappointment to his many friends that he so seldom emerged from the retirement of his charming retreat overlooking the Bruntsfield golf-links and the banks of the Forth.

Doctors, as a rule, have little time or inclination for public work outside their professional duties, but of Chiene it may truthfully be said that, in spite of his arduous routine work, he gave freely of his time and thought on behalf of many a project concerned with the welfare of the community. His commanding presence, his strong yet genial countenance, and his popularity made him a familiar figure to the citizens of Edinburgh. Chiene was more than a surgeon and teacher—he was a man of broad and statesman-like vision; he "reflected the human spirit always on the nobler side." He possessed "those finer qualities of head and heart which count for so much in life," and are such a valuable asset especially to a clinical teacher. It is safe to assert that his great natural ability, his strong individuality and lovable personality, would have assured him success in any sphere of life. He was an apostle of common sense, and was able to leaven his lectures and clinics with an amount of shrewd and helpful everyday philosophy much appreciated by his pupils. The methods which he introduced and the influence which he exercised on the Edinburgh Medical School have been far-reaching in their beneficence. His name will go down to posterity as a man of wide sympathies and high ideals, as well as a great teacher and sound surgeon.

Chiene was a famous football player and the first President of the Scottish Football Union. To the present generation he was a familiar figure on the golf course and on the curling-pond. Like many of my contemporaries, I owe some of my happiest days and reminiscences to the foursomes in which I was privileged to take part with my old and revered teacher, in the days of old Luffness and later at Machrie-hanish. The way Chiene played "with his head," the moral support he gave his partner, and the miracles he performed with his "little black spoon" made him a tower of strength to his partner. He knew his Bible as well as most ministers, and many a text was quoted in his classroom and wards in support of a principle or rule of conduct. His favourite text for the golf links was: "In quietness and confidence shall be your strength"—the best motto also for a surgeon. If his partner should miss a short putt, he would say, "Never mind, Harold; just think how happy you have made Harry or Francis" (both of whom, alas! have crossed the bar before him). He loved to play a good old foursome because, as he said, it teaches us to "bear one another's burdens." He was a very "clubbable" man, and used to advise the young practitioners to join a social club as well as the local medical society. Full of pawky Scottish humour and a good raconteur, he was always a great asset to the several medical dining clubs for which Edinburgh has long been famous. Although not an orator in the true sense of the word, he was an original and attractive speaker.

Professor Chiene was particularly happy in his home life, which was very dear to him. Deep sympathy will be felt for his family, and for his devoted and courageous wife, who so ably and efficiently shared with him the burdens as well as the joys of a life so strenuous and useful, so full of honour, service, and achievement.

By Sir DAVID WALLACE, K.B.E., C.M.G., President of the Royal College of Surgeons, Edinburgh.

Mr. Chiene, prior to his appointment to the chair of surgery in the University, was a successful teacher in the extra-mural school, for which he always retained a keen interest, as he believed it went far towards equipping men for wider spheres of work. Teaching was his chief delight, and he was unfailing in his efforts to inspire students with the love of work. His ideals were high and always far removed from the merely commercial side of his profession. He inculcated them at every opportunity, both in the class-room and in the wards of the infirmary. He taught many generations of students; his classes in the eighties and early nineties were very large, and the members of them enthusiastic admirers of their teacher. His style was peculiarly his own—vivid and graphic pictures of the subject, and interest added to the description by whimsical and humorous illustrations and asides, many being Biblical in their origin. The human side was constantly kept in view and in the wards the sympathy he showed to the patients, while keenly alive to the treatment of their physical ailments, was always apparent. Perhaps no teacher left deeper impressions upon his students than he did; his common sense and laconic statements being so much to the point and given in such a clear manner that they could not be forgotten. Innumerable doctors have been able, years afterwards, to recall his actual words and what he advised in the examination and treatment of cases, and have found them of inestimable value in their work. His teaching, while to a great extent based on anatomy, never lost sight of surgical pathology, in which early in his career he took a great interest.

Mr. Chiene never allowed private practice to interfere with his public services, and on many occasions refused to see a patient or go into the country in consultation, because he had his university lecture or infirmary work to do, and that he considered was his first duty. Nevertheless, for many years he had a large private practice; he gave much thought and care to his patients—many of whom became close personal friends. He early recognized the great importance of the mind over the body and that "a merry heart doeth good like unto a medicine." He had numerous friends in many countries, who recognized his genial nature and appreciated the power of the man and his influence for good.

By A. G. MILLER, M.D., F.R.C.S.E., Consulting Surgeon to the Royal Infirmary of Edinburgh.

John Chiene was in the same class with me at the Edinburgh Academy. He was always well up in the class, of which the clerk was Alexander Moore-Stuart. He got a medal in mathematics. He was always good at games, in which he took an interest to the last. At college we did not see so much of each other because I began my medical studies a year before he did. We were more intimately brought in contact after graduation, when resident surgeons in the Royal Infirmary. He was with Syme, I with Spence. We were both hard worked, having charge of about seventy beds, but in the evenings we were often together. Chiene's cheerful, kindly, and humorous disposition made him ever a welcome and pleasant companion. In many ways we were rivals, but always the best of friends, and this was largely due to his unfailing good nature.

Chiene's devotion to anatomy and surgery made him well qualified for the posts he ultimately filled. I remember his saying to me in these early days of our professional life, "If you want to know a subject thoroughly, teach it." For many years Chiene and Mitchell Banks and I exchanged greetings at the new year. After Banks's death there were only the two who exchanged birthday greetings—for we were the same age all but two days.

After Chiene retired from active work I used to go down and see him occasionally at Aithernie. He was always the same—cheerful, friendly, and jocular. We often talked of the Academy days and of the sadly decreasing number of our old class fellows. It was a pleasure to see "Honest John" sitting in his easy-chair at the fireside with his little patience card-table at his elbow, and on the other side of the fire Mrs. Chiene with her kindly smile of welcome. Chiene married comparatively young, and had his home brightened by the charming lady who survives him. The two

were well fitted to each other. There was ever and evidently a strong and happy fellowship between them. In Chiene's character and conversation there was always a marked reverence and regard for holy things, as witness his little book, *The Master: His beliefs, His promises, His blessings, His prayers, His commands, and His warnings.*

Dr. FRANCIS RAYMOND MITCHELL HEGGS, of Mapperley, Nottingham, died from pneumonia on May 19th, aged 48. He was a native of West Bromwich, and received his medical education at the University of Birmingham and at St. Mary's and the London Hospitals. He obtained the L.S.A. in 1896 and the diplomas of M.R.C.S.Eng., L.R.C.P.Lond. in 1900, and subsequently served as house-surgeon to the Wolverhampton and Staffordshire General Hospital. He took great interest in army medical work, and while in the Isle of Wight served as captain in Princess Beatrice's Rifles. He received the thanks of the late Prince Leopold and Princess Beatrice for the assistance he rendered when the Prince was thrown from his horse. On the outbreak of war in 1914 Dr. Heggs, who attained the rank of major in the R.A.M.C.T.F., was among the early volunteers; he commanded the third 1st Notts and Derby Mounted Brigade Field Ambulance, and saw much service in France. He was severely gassed, and in consequence suffered from chronic bronchitis. Dr. Heggs, who was a member of the Nottingham Division of the British Medical Association, was by nature quiet and retiring. He was very popular with all with whom he came in contact. He is survived by his widow, three sons, and a daughter. Many friends and patients attended the funeral service.

The Services.

PENSIONS APPEALS.

WE have received the following statement from the Ministry of Pensions, with a request for publication.

The Minister of Pensions desires to correct a misunderstanding which has arisen regarding the action of the Ministry consequent upon certain decisions by the Pensions (Assessment) Appeal Tribunals on appeals against final awards. It is erroneously supposed that the setting aside of a final award by a Tribunal implies that the award will be increased, or, if the appeal was against a nil disablement award or final weekly allowance, that a fresh award will be made at once. This is not the case. Under the War Pensions Act, 1921, the Tribunal is empowered to confirm, increase, decrease, or set aside a final award, and its decisions are equally binding on the Ministry of Pensions and the appellant. The setting aside of a final award ordinarily means that the Tribunal, without challenging the assessment, considers that the time has not yet come for the making of a final award. It does not necessarily follow that an increase in the current award will be due, or that a fresh award will be made if none is current. The man reverts to the position he was in before the final award was made. His case falls to be reconsidered under the Pensions Warrants by the Ministry, and where it is necessary to obtain a further assessment by a Medical Board of his degree of disablement this is done. In any event he has the right to claim re-examination on the ground that his condition has deteriorated. If the man's condition is found to have deteriorated, a fresh award is made; but if his condition has not deteriorated the current award remains in force. At a later stage, however, his case will again be considered with a view to a final award being made, and if the man is dissatisfied with such final award he can avail himself of a further right of appeal to the Pensions (Assessment) Appeal Tribunal.

OPERATIONS IN WAZIRISTAN, 1920-21.

THE names of the following officers have been brought to notice for distinguished service during the operations in Waziristan, 1920-21, by His Excellency Lord Rawlinson of Trent, Commander-in-Chief in India, in a dispatch dated October 23rd, 1921:

Commands and Staff.—Colonel W. E. Hudlestone, C.M.G., C.B.E., D.S.O. (late R.A.M.C.).

R.A.M.C.—Captain (Acting Lieut.-Colonel) A. G. Biggam, O.B.E., Captain (Temporary Major) W. M. Cameron, Major (Acting Lieut.-Colonel) H. Harding, Captain (Acting Lieut.-Colonel) C. M. Ingoldby, Captain (Acting Major) J. M. MacKenzie, M.C., Captain (Acting Major) O. Popham, Captain (Acting Major) M. P. Power, M.C., Captain T. H. Sarsfield, Captain B. C. O. Sheridan, M.C., Captain R. I. Sullivan, M.C.

Indian Army Medical Services.—Lieut.-Colonel (Acting Colonel) C. Hudson, C.I.E., D.S.O., Captain (Acting Major) J. B. Vaidya, I.M.S., Temporary Captain G. D. D. Wijesekere, I.M.S., 2nd Cl. Asst. Surg. W. G. Sherard, I.M.D., 3rd Cl. Asst. Surg. C. J. Smith, I.M.D., 1st Cl. Sub-Asst. Surg. Bashi Ram, I.M.D., 2nd Cl. Sub-Asst. Surg. Dayal Singh, I.M.D., 2nd Cl. Sub-Asst. Surg. Jawala Singh, I.M.D., 2nd Cl. Sub-Asst. Surg. Nand Lal Wig, I.M.D., 3rd Cl. Sub-Asst. Surg. Santan Singh Bisht, I.M.D., 3rd Cl. Sub-Asst. Surg. Somasundar Mudaliar, I.M.D.

Dr. Oguntola Sapara, Medical Officer, Nigeria, has been appointed to the Companionship of the Imperial Service Order.

Third class Assistant Surgeon George David Rodriques, Indian Medical Department, has been awarded the medal of the Military Division of the Order of the British Empire, for services rendered in connexion with the military operations in Malabar, 1921-22.

DEATHS IN THE SERVICES.

LIEUTENANT-COLONEL HENRY BRUCE MELVILLE, Bengal Medical Service (retired), died suddenly at Tain on April 15th, aged 59. He was the son of the late Robert Hayes Melville, of Partick, Glasgow, and was educated at Edinburgh, where he graduated M.B. and C.M. in 1885, also taking the certificate of the Medico-Psychological Association. After filling the post of senior medical officer at the Crichton Royal Institution, Dumfries, he entered the Indian Medical Service as surgeon on September 30th, 1889, passing into Netley second and passing out first of his term. He became lieutenant-colonel after twenty years' service and retired on January 22nd, 1921. Most of his service was spent in civil employ in the United Provinces, where, at various times between 1898 and 1917 he filled the posts of civil surgeon of Fatehgarh, Faizabad, Masuri, and Naini Tal, and superintendent of the Lucknow Central Gaol, and from 1913 to 1915 that of civil surgeon to the new capital, Delhi. In May, 1917, he was appointed civil surgeon of Lucknow, and professor of midwifery in Lucknow University, and six months later residency surgeon of Kashmir, where he finished his service. He served on the North-East Frontier of India in the Lushai campaign of 1890.

Lieut.-Colonel John Stevenson, R.A.M.C. (retired), died recently at Hove, aged 75. He was born in Edinburgh, but was educated at Glasgow University, where he graduated M.B., with commendation, in 1874; he took also the L.R.C.S.Ed. in 1875, the Fellowship in 1883, and the B.Sc. and D.Sc. at Edinburgh in 1888 and 1890. After serving as resident physician in the Edinburgh Royal Infirmary he entered the army as surgeon on August 4th, 1878, became lieutenant-colonel after twenty years' service, and retired on November 2nd, 1898. After retirement he was employed at Berwick in 1889 and at Aberdeen in 1902-03.

Lieut.-Colonel Ernest Albert Churchward Matthews, D.S.O., I.M.S., died on May 8th, aged 40, from injuries received in a motor accident near Jerusalem. He was born on August 3rd, 1873, and educated at Cambridge, where he graduated B.A. in 1894, and M.A., M.B., and B.Ch. in 1899; he was a student at St. Bartholomew's, and took the M.R.C.S. and L.R.C.P.Lond. in 1898. He entered the I.M.S. on January 27th, 1900, and became lieutenant-colonel after nineteen and a half years' service. He served in the Mohmand campaign of 1908, on the North-West Frontier of India, receiving the frontier medal with a clasp; and in the recent war, in the operations in France and Belgium from December, 1914, to March, 1918; and with the Egyptian Expeditionary Force from April to October, 1918, being mentioned in dispatches (June, 1916, and May, 1918), and receiving the D.S.O.

Lieut.-Colonel William Malloch Hart, M.C., Canadian Army Medical Corps, died at Ottawa, after an operation, on April 17th. He graduated as M.B., Manitoba University, in 1907, and took the diploma of M.C.P.S., Manitoba, in the same year. He served in the C.A.M.C. throughout the war, becoming major on December 5th, 1916, and lieutenant-colonel on May 17th, 1918, and received the Military Cross on January 10th, 1917. He was employed on soldiers' civil re-establishment work at Ottawa.

Brevet Colonel Henry Aylmer Haines, R.A.M.C.(retired), died at Strood, Kent, in April, aged 61. He was born at Mallow, and educated at Queen's College, Cork, graduating in 1882 as M.D., M.Ch., and M.A.O. of the Royal University, Ireland. He entered the R.A.M.C. as surgeon on January 31st, 1885, became lieutenant-colonel after twenty years' service, and received a brevet colonelcy on January 1st, 1917, retiring on May 2nd, 1918. He served in the Chitral campaign on the North-West Frontier of India in 1895, and received the frontier medal with a clasp.

Surgeon Lieut.-Colonel Hopetoun Currie Collier, R.A.M.C. (retired), died at Paignton, South Devon, on May 10th, aged 82. After taking the L.R.C.P. and S.Edin. in 1862, he entered the army as assistant surgeon in September, 1863. He became surgeon major on April 28th, 1876, and retired with an honorary step of rank as brigade surgeon in March, 1886. He served in the Abyssinian campaign of 1868, was present at the action of Arogee and at the capture of Magdala, and received the medal. In the old regimental days he served in the 4th Foot, the King's Own Royal Lancaster Regiment, and in the 16th Foot, the Bedfordshire Regiment, then known by the nickname of "the Peacemakers."

Captain Thomas Copeland Storey, M.C., R.A.M.C., died at Cologne on April 25th, aged 32. He was educated at the Middlesex Hospital and at Durham University, where he graduated M.B. and B.S., with honours, in 1912, and M.D. in 1916. He was in the Special Reserve of the R.A.M.C. before the war, having attained the rank of captain from April 1st, 1914; subsequently he took a permanent commission, being ranked as captain from April 1st, 1915. He served throughout the recent war, and received the Military Cross on July 26th, 1918.

Flight-Lieutenant Harold Wilbert Street, Royal Air Force Medical Service, died of pneumonia at Constantinople on April 21st. He was a Canadian, and was educated at Toronto University, where he graduated M.B. in 1918. He had only recently entered the service.

Medical News.

EXCELLENT work has been done on behalf of the chemical industries of this country by the Association of British Chemical Manufacturers during the short period of its existence as an organized body. The members of the association are manufacturers, but the association is not a trading institution and is not concerned with profit earning for itself; its principal object is the advance of British chemical manufacturing industries as a whole. Nearly one hundred and fifty firms, representing a capital of over £100,000,000, are members. A sign of the activity of the association in promoting business facilities between manufacturers and purchasers is seen in the issue of a directory of its members with a classified list of their products and manufactures, including many medicinal articles and fine chemicals. Under the name of each article in the list appear the names of the firms who manufacture it. The directory also contains indexes to the list in French, Spanish, Italian, Portuguese, and German. The association offers to advise on all matters relating to the chemical trade and to make inquiry on behalf of intending purchasers for materials they have had difficulty in obtaining.

IT will be remembered that last year (JOURNAL, July 1st, 1922, p. 26) the Council of the British Medical Association made an appeal for the starving doctors of Russia, and this appeal was repeated at the end of December (SUPPLEMENT, December 30th, 1922, p. 233). Subscriptions were limited to five shillings, and nearly £2,000 has been raised. The condition of the members of the medical profession in Russia has not improved in the meantime, but, if anything, their want and misery have become worse. An appeal is being made in aid of Russian doctors and Russian medical institutions by an influential international committee; subscriptions should be sent to the secretariat of Dr. Fridtjof Nansen, 54, Rue du Rhône, Geneva, Switzerland. Another appeal, in aid of the Russian doctors and medical staff in the famine-stricken regions, has been issued by the Medical Aid Committee, of which Miss Margaret Llewelyn Davis is president; donations in money and in kind should be sent to the secretary of the Medical Aid Committee, 68, Lincoln's Inn Fields, London, W.C.2. It may not be amiss also to remind our readers that the fund opened by the Council of the British Medical Association is still open; subscriptions (of five shillings and multiples of five shillings) should be sent to Mr. Ferris-Scott, Financial Secretary, British Medical Association, 429, Strand, London, W.C.2.

THE annual meeting of the University of Durham Medical Graduates Association will be held in the College of Medicine, Newcastle-on-Tyne, on Monday, June 25th, at 5 p.m. The annual dinner will be held the same evening in the King's Hall, Armstrong College, Newcastle-on-Tyne, at 7.45 p.m. Durham medical graduates who are not already members of the association and who desire to join are requested to communicate with the Hon. Secretary (North), Royal Victoria Infirmary, Newcastle-on-Tyne.

IN connexion with the courses of lectures arranged by the Fellowship of Medicine to which reference was made last week (p. 957), courses in ophthalmology have been arranged at the Royal London Ophthalmic Hospital and in dermatology at the St. John's Hospital for Diseases of the Skin, beginning on Monday, June 11th. These courses will consist of lectures and clinical demonstrations each day in the wards and out-patient departments. The programme for July includes a refresher course at the Royal Northern Hospital, in conjunction with the Central London Ophthalmic Hospital and the Royal Chest Hospital, from July 2nd to July 14th; a fortnight's intensive course in cardiology at the National Hospital for Diseases of the Heart, commencing on July 2nd; and a course of dermatology at the Hospital for Diseases of the Skin, Blackfriars, from July 16th to July 28th. Full particulars can be obtained on application to the Secretary, Fellowship of Medicine, 1, Wimpole Street, W.1.

THE League of Nations Union has arranged a conference on the international labour organization and industrial health to be held at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W.1, on June 19th and 20th. The conference will meet each day at 10.30 a.m. and adjourn at 1 p.m. for luncheon; it will reassemble at 2.30 p.m. and continue its sitting till 5 p.m.

A POST-GRADUATE course on tuberculosis (including surgical tuberculosis, by Professor A. Broca) will be held at the Hôpital de la Charité, Paris, under the direction of Professor Émile Sergent, commencing on June 13th. The fee is 150 francs.

PROFESSOR LEATHES is unavoidably prevented from delivering the Croonian Lectures before the Royal College of Physicians on the dates announced. The course is therefore postponed.

MR. NEVILLE CHAMBERLAIN, the Minister of Health, was the principal guest at the annual dinner of the Federation of Medical and Allied Services, which took place at the Langham Hotel on May 29th. Sir Berkeley Moynihan, who presided, referred to the family tradition of public service in this country as exemplified in the Chamberlains and others. It was surely a remarkable thing that Queen Elizabeth's great Minister should have had a direct descendant to serve Queen Victoria, and that the son (Lord Robert Cecil) of the Victorian Minister should be the latest but not by any means the weakest of the recruits to the new Ministry. Of all the men in the Government, Sir Berkeley Moynihan thought that the Minister of Health was least to be envied. Around the question of health had arisen many conflicts of opinion, and the Minister had to walk warily. On many questions upon which the medical profession had a right to pronounce, any further progress was limited by the extent to which the public was willing to co-operate; he instanced the campaigns against cancer and against tuberculosis. Mr. Chamberlain, in responding to the toast of his health, remarked that he had heard it said of a certain journal that it contained more truth on its cover than in its pages, and so far as his experience at the Ministry of Health had gone, he began to think that there was more "health" in its title than in its functions. He gave an amusing list of the varied questions, chiefly rent and rating matters, with which he had had so far to deal, and expressed the hope that presently he might arrive at some questions of health. Ever since he had taken any interest in public work he had felt that there was no greater benefit which statesmanship could confer than some measure which might lead to a general improvement in the health of the people, for upon their health depended their enjoyment of life and their prosperity. He was specially impressed by the extent to which research stood in need of encouragement. He once asked an eminent authority why there were so many more specialists on the Continent than in this country, and he was told that on the Continent there were many more endowments, whereas men in this country who were fitted for research had to carry on general practice for a livelihood. Some day a complete health policy for this country might be forthcoming, but it would have to be under a Minister who was fortunate enough to remain in office for more than a few months. It would require more adequate institutional accommodation, or rather, a better distribution of the institutional accommodation already existing. We had in this country physicians and surgeons second to none, but the best use was not being made of their services. Sir Thomas Horder proposed the health of the other visitors, and responses were forthcoming from Lord Riddell and from Sir William Hale-White. The toast of "The Chairman" was proposed by Mr. Ernest Clarke and very heartily honoured.

THE KING has sent a donation of £100 to the fund that is being raised by the British Empire Cancer Campaign.

AT a meeting of the Royal Sanitary Institute, to be held at Cambridge on June 23rd, Mr. J. E. Purvis, M.A., Secretary to the State Medicine Syndicate, will open a discussion on the grading of milk.

THE Association of Economic Biologists will hold its annual field meeting at Cambridge on Friday, June 15th. Visits will be paid to the School of Agriculture, the National Institute of Agricultural Botany, and the University Farm and Plant Breeding Institute.

THE Section for the Study of Disease in Children of the Royal Society of Medicine will meet in Bristol on June 22nd and 23rd. On Friday afternoon (June 22nd) cases will be shown at the Bristol Children's Hospital, and afterwards, at a meeting in the department of pathology of the university, papers will be read by Dr. J. A. Nixon on the Schick reaction and diphtheria anaphylaxis, by Dr. O. C. M. Davis on certain urinary conditions in childhood, and by Mr. E. Watson-Williams on acute sinus disease in young children. There will be a dinner in the evening, and on Saturday a visit will be paid to Mr. Vesey's farm, Wincanton, to see the production of certified milk.

MESSRS. WATSON AND SON (43, Parker Street, London, W.C.2) have issued a list of second-hand *x*-ray and electro-medical apparatus.

APPLICATIONS for the Henry George Plimmer Fellowship in Pathology must be sent to the Rector, Imperial College of Science and Technology, South Kensington, S.W.7, by June 25th. Candidates must be qualified to pursue research in pathology (including morbid anatomy, protozoology, bacteriology, and allied subjects in either zoology or medicine or botany).

Letters, Notes, and Answers.

As, owing to printing difficulties, the JOURNAL *must be sent to press earlier than hitherto, it is essential that communications intended for the current issue should be received by the first post on Tuesday, and lengthy documents on Monday.*

ORIGINAL ARTICLES and LETTERS *forwarded for publication are understood to be offered to the* BRITISH MEDICAL JOURNAL *alone unless the contrary be stated.*

CORRESPONDENTS who wish notice to be taken of their communications should authenticate them with their names—of course not necessarily for publication.

AUTHORS desiring reprints of their articles published in the BRITISH MEDICAL JOURNAL are requested to communicate with the Office, 429, Strand, W.C.2, on receipt of proof.

IN order to avoid delay, it is particularly requested that ALL letters on the editorial business of the JOURNAL be addressed to the Editor at the Office of the JOURNAL.

THE postal address of the BRITISH MEDICAL ASSOCIATION and BRITISH MEDICAL JOURNAL is 429, Strand, London, W.C.2. The telegraphic addresses are:

1. EDITOR of the BRITISH MEDICAL JOURNAL, *Aitiology, Westrand, London;* telephone, 2630, Gerrard.

2. FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate, Westrand, London;* telephone, 2630, Gerrard.

3. MEDICAL SECRETARY, *Mediocra, Westrand, London;* telephone, 2630, Gerrard. The address of the Irish Office of the British Medical Association is 16, South Frederick Street, Dublin (telegrams: *Bacillus, Dublin;* telephone, 4737, Dublin), and of the Scottish Office, 6, Rutland Square, Edinburgh (telegrams: *Associate, Edinburgh;* telephone, 4361, Central).

QUERIES AND ANSWERS.

ACCIDENT OR ILLNESS.

DR. CLEMENT DUKES (Rugby) writes: In reply to the question of "Pasce" I am able to give him the information he seeks, as I have always kept accurate records of anything that concerned me in my life. I am insured in the Railway Passengers' Accident Assurance for £1,000, on the terms of £6 a week for total disablement, and £1 10s. a week for partial disablement. In December, 1889, I poisoned my thumb during an operation, and was partially disabled for fourteen days, and received £3. In February, 1915, I poisoned a finger in a similar way, was partially disabled for five weeks, and received £7 10s. Again, in May, 1920, by another poisoned finger from the same cause, I was partially disabled for three weeks, and received £4 10s. Further, on one of these latter occasions, when totally unfit for my work from my septic state, *The Practitioner* treated me with more than generosity from their fund.

INCOME TAX.

"EXES" has bought a half share in a practice previously worked by one practitioner only; the receipts have not yet materially increased, and "Exes" inquires what would be a reasonable addition to make to the expenses.

*** The liability to assessment is determined by the average profits of the practice during the three years previous to the year of assessment. If owing to the succession of the present firm to the previous proprietor of the practice the actual earnings for that year fell short of the sum assessed the firm can claim an adjustment to the actual profits. In neither case is any estimate of expenses required, inasmuch as either on the three years' average or on the current year's basis it is the amount of the profits after deducting actual expenses that is in question. Among the expenses to be included will be the cost of running and repairs of the additional car, together with the wages, etc., of a chauffeur, and a proportion of the expense of upkeep of our correspondent's house, provided that patients are seen there as well as in the surgery belonging to the practice.

"SIMPLEX" qualified in March, 1921; between that date and September, 1922, he earned sundry amounts as assistant or locumtenent; since then he has been in partnership. He is about to purchase a car and inquires as to the basis of his return and the allowance due for the cost of his car.

*** The firm is assessable in one sum—less the appropriate allowances for each partner—on the average profits of the practice after deducting expenses, for the previous three years. The tax payable by "Simplex" on that assessment will be on his fractional share of the assessment less his own allowances and reliefs. So far as the car is concerned, no allowance is legally due, as it cannot be regarded as an expense for income tax purposes; the cost of the car is an outlay of capital, and the only allowance that arises out of the transaction is the inclusion of the net cost of replacement in any future year, when the car is replaced, among the firm's professional expenses.

Car Transaction.

"A. L." bought a 15.9-h.p. Star in July, 1914, for £375; he sold it in March, 1919, for £250, buying a Ford for £250. In December, 1919, a second (Ford) car was bought for £425, and in March, 1922, the first was sold for £90 and a 13.9 Calcott bought for £450.

*** In the circumstances we suggest that the car equipment may fairly be dealt with as a whole, the result being as follows:

1919.	
Expenditure £250 + £425	£675
Less amount received for Star	£250
	£425
Deduct "improvement" cost, £575 − £375	£300
Amount allowable	£125
1922.	
Expenditure £450 − £90	£360
Deduct "improvement" cost, £450 − £250	£200
Amount allowable	£150

LETTERS, NOTES, ETC.

RAT-BITE FEVER.

DR. R. ROW, O.B.E., consulting physician, Gokuldas Hospital, Bombay, writes regarding a recent inquiry as to the occurrence of an eruption in rat-bite fever (JOURNAL, March 24th, 1923, p. 542) and encloses reprints of two articles published by himself upon the subject in the *Bulletin de la Société de Pathologie Exotique* (vol. xi, No. 3, 1918, p. 188) and the *Transactions of the Royal Society of Tropical Medicine and Hygiene* (vol. xvi, No. 4, October, 1922, p. 203). Dr. Row refers in the first article to the writings of Wagabhatt, who flourished twenty-three centuries ago, in which the cutaneous lesions produced by rat-bite are described (according to the Marathi translation) as follows: "Burning in the patches; nodular and urticarial eruption; petechial and even haemorrhagic patches on the body; oedematous condition, discoloration, and even ulceration of the nodules; lividity of the mucous membranes and haemorrhagus." Dr. Row (in the *Bulletin*) goes on to say that, in his experience of the condition, after a definite incubation period of seven to ten days from the time of the bite a "secondary eruption" appears on the skin, consisting of a few purple spots or nodules (sometimes an extensive eruption), of an urticarial nature, tender on pressure. He gives photographs of a typical case.

SMOKING AND CANCER: PIPE OR CIGARETTE?

DR. FITZJAMES MOLONY (Porlock, Somerset) writes: An appeal from the British Empire Cancer Campaign states that one in every seven deaths over 30 years of age is caused by cancer, and that the latter is the most frequent cause of death after that age. It is a question whether cancer of the tongue and throat need be so prevalent. It is largely caused by pipe smoking. I have never seen a case in men or women who smoke only cigarettes, while it is increasingly frequent in men who smoke pipes. The explanation is simple enough. The force of a current of hot air or smoke is in inverse ratio to the size of the bore. In a small-bore pipe the current of air is strong enough to strike the epithelium of the tongue or throat with great force, and it may well be the starting point of cancer. For many years I have advised men over 40 years of age to give up their pipes and take to cigarettes. A pipe with an unusually wide bore is the only relatively safe pipe to smoke. A cigarette should be smoked without a tube or with a very wide-bored one.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 28, 29, 30, 31, 34, and 35 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 32 and 33.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 243.

SCALE OF CHARGES FOR ADVERTISEMENTS IN THE BRITISH MEDICAL JOURNAL.

	£	s.	d.
Six lines and under	0	9	0
Each additional line	0	1	6
Whole single column (three columns to page) ...	7	10	0
Half single column	3	15	0
Half page	10	0	0
Whole page	20	0	0

An average line contains six words.

All remittances by Post Office Orders must be made payable to the British Medical Association at the General Post Office, London. No responsibility will be accepted for any such remittance not so safeguarded.

Advertisements should be delivered, addressed to the Manager, 429, Strand, London, W.C.2, not later than the first post on Tuesday morning preceding publication, and, if not paid for at the time, should be accompanied by a reference.

NOTE.—It is against the rules of the Post Office to receive *poste restante* letters addressed either in initials or numbers.